

EVALUATION OF TESTIMONY

REGIONAL STRATEGY

General Comments

One individual commented that it is not worth mentioning Alcoa and Eastman Chemical Company in this SIP because there are no hard commitments to reduce pollutants.

The commission agrees that the proposed language in the SIP approved for publication on December 16, 1999, does not include enforceable commitments. The agreed orders between the commission and the two affected companies were being processed on a slightly later schedule than the rest of the SIP, therefore the language in the proposed SIP at that time was vague. Since the agreed orders have been signed and the public hearings process for the orders is complete, staff has revised the language in the SIP to include specific information about the commitments made by the two companies.

Modeling Comments

The TPPF commented that the use of air models as predictive planning tools is well known practice to those involved in this aspect of regulatory policy under the federal Clean Air Act. Models are used to estimate the behavior of the natural world under established conditions, or to explore outcomes of changing atmospheric conditions, both natural and man-made.

In 1999, the National Center for Environmental Research, a research group within EPA's Office of Research and Development, examined uncertainties in air quality models because of the central role they play in the design of urban ozone reduction strategies. Research examined the development of approaches for estimating uncertainties in critical air model parameters and inputs. As part of that research, an assessment of emission inventory uncertainties was extended to include diesel off-road mobile sources.

The commission is aware of the uncertainties inherent in the process of modeling to demonstrate attainment of the ozone standard. However, the commission also realizes that the science of air quality modeling is constantly evolving, and that if we wait for all the uncertainties to be resolved the citizens of Texas will be forced to breathe unhealthy levels of air pollution for decades to come. While there is always some risk that decisions made today may later prove to be less than optimal, Texas is required by federal law to develop a plan now that demonstrates attainment. We are using the best science currently available to perform the analyses.

Regarding the need to improve the emissions inventory for off-road mobile sources, the commission has recently completed a survey of these sources in the Houston area, and has extended these results to the DFW area. Modeling using this improved inventory is documented in the final version of the attainment demonstration.

One individual commented that the commission should eliminate rules pertaining to NO_x reductions because the National Academy of Sciences has stated that the balance and ratios for NO_x and VOC means that decreasing NO_x could increase ozone.

The commission agrees that under certain conditions, initial NO_x emission reductions can increase ozone formation, which is designated by the term “NO_x control disbenefit,” and has considered this effect in great detail when evaluating the proposed control strategy.

When the VOC to NO_x ratio in the ambient air is less than 8:1, initial NO_x emission reductions can increase ozone formation. Since this ratio varies both geographically and temporally, a detailed analysis is necessary to properly evaluate proposed control measures. This is one of the many concerns that lead to the development and use of photochemical grid modeling to evaluate ozone control strategies, not only in Texas, but also nationally and internationally.

In some other nonattainment areas, our photochemical grid modeling shows that initial NO_x emission reductions will tend to cause a NO_x control disbenefit, but that greater NO_x emission reductions will correct the disbenefit and lead to an overall ozone reduction. In order to avoid the initial NO_x control disbenefit, it will be necessary to carefully combine VOC emission reductions with the NO_x emission reductions. As a result, a combination of major NO_x emission reductions with substantial VOC emission reductions will be preferred in that area.

However, in the DFW nonattainment area, our photochemical modeling shows that a NO_x control disbenefit will not be a problem. So, a strategy of mostly NO_x emission reductions, with only small VOC emission reductions, will be effective in reducing ozone in DFW.

An individual commented that the regional strategy is incomplete because it does not address transport completely. The commenter stated that there is no discussion about how much ozone comes from the various parts of Texas and influences the other parts of Texas. One individual commented that the commission needs to go into more detail about HGA's contribution to the transport issue if we are going to claim that it is a real problem with reaching attainment in DFW - i.e. have we actually tracked emissions from HGA to DFW on a day when DFW had an exceedance? If so, how much contribution did HGA really make? Another individual commented that if we are truly affected by transport from outside the state then we should reveal how much, where it comes from, and what needs to be reduced. We also need to determine our impact on other states.

Appendices have been added to the regional strategy chapters that address the amount of ozone coming from various parts of the state and the influence it has on other areas. The Commission does not claim that the transport from the HGA area poses a real problem for the DFW reaching attainment. Appendix N, Demonstration of Transport From the HGA Ozone Nonattainment Area to DFW, of the Dallas SIP only concludes that the HGA urban plume does on occasion contribute to the high ozone that occurs in the DFW area and the plume is transported to other areas in Texas and adds to the background concentrations. The commission has completed an analysis of 160 back wind trajectories constructed for all the high 1-hour ozone days that occurred between 1994 and 1998 and the analysis is summarized in the appendix. Due to time constraints in completing the SIP, current agency activities with regard to transport are directed at examining in-state transport and developing control strategies to address the issue.

Eastman Comments

The City of Longview, Gregg County, and Northeast Texas Air Care co-chairs Judge Mickey Smith and Mayor David McWhorter (referred to here as NETAC) submitted joint oral testimony regarding the Agreed Order. NETAC strongly supported the air quality control strategies that have been developed through the Flexible Attainment Region agreement. NETAC stated that this negotiated process has made

it possible to design common sense strategies which improve air quality while protecting the local economy. NETAC also commended Eastman Chemical Company, Texas Operations (Eastman) for their participation in the FAR process by committing to significant new oxides of nitrogen (NO_x) emissions reductions into the State Implementation Plan (SIP).

The commission concurs with these remarks.

Environmental Defense commented that the 1,671 tons per year reduction of NO_x claimed in the Agreed Order was misleading because it failed to account for emissions that will result from a new cogeneration facility which is to be built on the Eastman property. Environmental Defense also stated that the SIP should not claim emissions reductions that result from shutting down existing facilities unless it also accounts for the emissions from any replacement facilities.

The commission recognizes that the building of a new cogeneration facility will result in new emissions. However, the commission disagrees that the SIP should not claim emissions reductions resulting from the shutting down of existing facilities unless it accounts for the emissions from any replacement facilities. A permit for a new cogeneration plant has been issued to another company. The shutting down of existing facilities will result in permanent emissions reductions by the permitted units as indicated in the Agreed Order. Emissions from any new units, such as the proposed cogeneration facility, will be subject to Prevention of Significant Deterioration permitting requirements which require Best Available Control Technology. In addition, any new emissions, whether from the Eastman facility or from any other major source in the Northeast Texas region, will be accounted for in future emissions inventories.

Environmental Defense commented that paragraph 27 of the Agreed Order stipulated that the Order did not preclude inclusion of the emissions reductions in Eastman's application for any voluntary emission reduction permits. Environmental Defense stated that the Agreed Order should explicitly state that the reductions contained in the Order in no way substitute for or necessarily suffice for any potential emission reductions requirements, including, but not limited to permitting under Senate Bill 766 or any possible SIP revisions.

It is not necessary for approval of the SIP revision that the commission make any agreement as to whether these reductions are subject for approval of any Voluntary Emission Reduction Permits (VERP) application. The commission does not need to determine whether these reductions should or should not substitute for reductions required by Senate Bill 766 until Eastman files a VERP application and appropriate review is conducted to determine what control technology meets the VERP statutory requirements. Therefore, the commission will not stipulate whether the reductions are sufficient. The commission also acknowledges that the reductions for the SIP are separate from any non-SIP permit program, such as VERP.

Environmental Defense commented that while the Agreed Order describes quantifiable and enforceable control measures that will be implemented as contingency measures under the FAR agreement, the Order should also include all necessary control measures that Eastman must implement in order to demonstrate attainment of the 1-hour ozone standard. Environmental Defense also stated that the commission should document how the measures in the Agreed Order coincide with the modeled control strategies performed by a consultant on behalf of the local area.

The commission acknowledges that photochemical modeling was performed by a contractor on behalf of the local area and that the modeling demonstrated attainment of the 1-hour ozone standard. The commission disagrees that the agreed Order should include all necessary controls that Eastman must contribute in order to show attainment. It is commendable that NETAC took the pro-active steps of hiring a consultant to ascertain what controls would be necessary to attain the 1-hour standard. However, photochemical modeling is not required in the FAR agreement nor is the need for an attainment demonstration. Further, Eastman has committed to implement additional reductions in the near future as have other major stationary source companies in the Northeast Texas area. These point source reductions, coupled with reductions from other state and federal programs, will be consistent with the control strategy scenarios that were included in the photochemical modeling.

EPA commented that the emissions reductions committed to in the Agreed Order would not be surplus to the baseline established by the SIP and that these reductions would be included in attainment demonstration modeling and would not be available to be banked or used for permitting offsets.

The commission agrees that the reductions claimed in the SIP cannot be banked or used for permitting offsets.

EPA stated that the word “if” should be inserted in the first sentence of paragraph 28 in the Agreed Order between the words “...Order,” and “any...”.

The Agreed Order has been revised to include this change.

Alcoa Comments

IBEW and Steelworkers support the Agreed Order. One individual, Sierra Club, and SEED generally supported the proposal but stated that Alcoa should make further emission reductions. SEED stated that a reduction of 90% would be more appropriate. NFN and TCE also support further reductions. One individual generally agreed with the pollution reductions in the Alcoa Agreed Order in the SIP and expressed hope that it would alleviate the pollution problems, including odor and acid fall out, that have been destroying lives and property for years.

The NO_x reductions required by the Agreed Order total 30% of the emissions reported by Alcoa in its emissions inventory for 1997 for these three boilers. This will reduce the total emissions from the boilers to 13,622.4 tons per year. The position of the commission is that this represents a significant reduction in emissions, and has demonstrated that these reductions will significantly contribute to the region’s timely attainment or maintenance of the NAAQS for ozone and the protection of public health.

Sierra Club commented that the Agreed Order states that the reductions for boiler number 3 are 54%, which is much higher than the reductions for the other two boilers, although the overall reduction is 30%.

The commission disagrees with the 54% figure. The NO_x reductions required by the Agreed Order total 30% for each of the three boilers, which is also 30% of all three boilers combined.

NFN commented that Alcoa is making no further commitments for future emission reductions and that Alcoa is part of the problem of meeting the clean air standards in Texas. ED expressed qualified support for including in the SIP the voluntary NO_x emission reductions contained in the Agreed Order because it

will contribute to efforts to reduce ozone pollution in the state. ED views Alcoa's action as a "down payment" to a more substantial obligation to reduce its emissions to a level consistent with achievement of ambient air quality standards and protection of visibility in Texas.

While Alcoa has not entered into any agreement with the commission to make further emission reductions in the future, the existing Agreed Order does not preclude the commission from requiring Alcoa to further reduce emissions from its facilities in the future if it becomes necessary to meet federal air quality standards.

ED expressed concern that while it is not the intent of the commission to allow Alcoa to avoid the more stringent emission limits required by SB 766 or any potential future SIP requirements, Alcoa could use the Agreed Order as a basis to do so. ED commented that the commission must ensure that Alcoa will have to meet a standard at least as stringent as the New Source Performance Standard in 40 CFR 60, Subparts D and Db for lignite fuel steam generators if it chooses to permit its facilities under SB766. To address these concerns, ED encouraged the commission to include language in the Agreed Order that explicitly states that the reductions contained in the order are not a substitute for nor do they necessarily suffice for any other emission reduction requirements, including, but not limited to: i) Permitting under SB766, or ii) any possible future SIP revisions.

It is not necessary for approval of the SIP revision that the commission make any agreement as to whether these reductions are appropriate or sufficient for approval of any application submitted under the Voluntary Emission Reduction Permits (VERP) program, the permit program authorized by SB 766. The commission does not need to determine whether these reductions should or should not substitute for reductions required by SB 766 until Alcoa files a VERP application and appropriate review is conducted to determine what control technology meets the VERP statutory requirements. Therefore, the commission will not stipulate whether the reductions or standards proposed by ED are sufficient or appropriate. The commission also acknowledges that the reductions for the SIP are separate from any non-SIP permit program, such as VERP.

EPA expressed appreciation that the SIP revision has been prepared and encouragement that Texas is devoting considerable resources and dedication to preparing these plans which should result in cleaner air. EPA stressed that the emissions reductions contained in the Agreed Order will not be surplus to the baseline established by the SIP, and that the reductions will be included in attainment demonstration modeling so they cannot be banked and used for permitting offsets.

The commission agrees that the emission reductions contained in the Agreed Order cannot be banked or used for permitting offsets in new source review permitting because they are being included as part of the SIP attainment demonstration.

TCE commented that Alcoa's heavy equipment should not have been exempted from NO_x emission reductions, and should have been included in the Agreed Order.

Alcoa's heavy equipment was not exempted from consideration for NO_x emission reductions. Alcoa was able to demonstrate that it will meet the emission reductions required by the commission by implementing the control measures described in the Agreed Order. As such, Alcoa was not required to reduce emissions from any other sources.

TCE commented that the reductions should have been based on the highest baseline year. SEED wanted the reductions to be based on an average year.

Although approval of the standard permit for Boiler 2 included information based on Alcoa's 1998 emissions inventory figure for that particular boiler, the 30% reduction is based on Alcoa's 1997 emission inventory. The 1997 baseline year was chosen because it is a representative year for Alcoa's emissions.

TCE expressed concern about the monitoring provisions in the Order, specifically the initial and continuous compliance demonstrations. TCE also urged clear monitoring requirements be included in the Order, and commented that NO_x monitors should be placed in the stacks.

Standard permits for voluntary installation of control equipment typically do not contain specific requirements for monitoring or continuous compliance demonstrations. However, the Agreed Order has been modified to include a requirement that Alcoa conduct stack sampling to establish the actual pattern and quantities of NO_x and CO being emitted from Boilers 1, 2 and 3. This sampling, together with the required annual emissions inventory provided by Alcoa, is adequate to determine whether the controls are achieving the desired reductions.

ED commented on the way that the actions described in the proposed Order are reflected in the SIP modeling. Because the commission intends to include Alcoa's commitments in the SIP, it must exercise care in how they are reflected in the SIP modeling. In particular, the key input that the commission must extract from the proposed Order for the modeling is the total maximum allowable emissions of 13,622 tons per year. The commission should not merely reduce by 30% the emissions in the base year because this may result in a prediction of a lower emissions than would actually be the case.

SB 766 encourages non-EGU sources in attainment areas of Texas to acquire permits for their grandfathered units, and failure to do so will significantly increase emission fees for certain sources. The commission estimated that SB 766 would result in approximately a 30% decrease in emissions of NO_x from grandfathered non-EGU sources across Texas, and this assumption was included in all DFW modeling strategies prior to D44, but was dropped in response to comments from EPA Region VI. The modeling for DFW Strategy DATT does include the emission reductions specified in the Agreed Orders for two large sources affected by SB 766 (Alcoa and Eastman Chemical), but the commission expects many additional sources to make substantial emission reductions prior to 2007. These reductions will aid the nonattainment areas in East and Central Texas in their quest to reach attainment by reducing background concentrations of ozone and its precursors, which will in turn aid in lowering ozone concentrations in the nonattainment area.

NFN commented that the reduction of less than 6% of Alcoa's current emissions, or nearly 6,000 tons per year of NO_x is almost insignificant considering that that Alcoa plant emits over 100,000 tons per year of pollutants. NFN commented that the reductions contained in the Agreed Order are too little and too late, and that Alcoa could have voluntarily reduced their emissions many years ago.

The NO_x reductions required by the Agreed Order total 30% of the emissions reported by Alcoa in its emissions inventory for 1997 for these three boilers. This will reduce the total emissions from the boilers to 13,622.4 tons per year. The position of the commission is that this represents a significant reduction in emissions, and has demonstrated that these reductions will significantly contribute to the region's timely attainment or maintenance of the NAAQS for ozone and the

protection of public health. The purpose of this SIP revision is for the control of ozone, and therefore reductions in other contaminants which are not precursors for ozone formation were not considered in the regional strategy portion of the SIP revision.

NFN commented that economic factors should not be determining factors for decisions made by the commission regarding pollution reductions. NFN commented that this Agreed Order grants Alcoa another loophole at the expense of public health and the environment, and that the profits of industry are more important to the commission than the environment they are paid to protect. NFN mentions that in 1992, the commission allowed Alcoa to increase sulfur dioxide emissions from three pounds per million btu (MmBtu) to four pounds per MmBtu, a 33% increase. In doing so, the commission rejected certain alternatives to using high sulfur lignite Alcoa uses to power their plant, purely for economic reasons. Sierra Club commented that Alcoa should commit more of their profits towards reducing pollution.

Texas Clean Air Act § 382.024 requires the commission to consider the economic value of the source of the emissions. Therefore, economic factors can be considered in the issuance of SIP orders such as the Agreed Order signed by Alcoa. NO_x is a precursor for the formation of ozone, a pollutant for which the area in which the facility is located is unclassified regarding federal air quality standards. These reductions will reduce exposure by the public to ozone, including emissions of NO_x.

SEED commented that Alcoa's boilers are technologically outdated, and need to be modernized.

The commission does not have the authority to require Alcoa to replace its boilers.

Alcoa described the emission reduction technology that Alcoa will implement to reduce NO_x emissions and the installation schedule for that equipment and stressed that the equipment being installed represents the application of all proven combustion control technologies to reduce NO_x for those boilers. Alcoa also commented that it understands that reductions of ozone precursors must be made due to pollutant transport issues, and the potential beneficial impact the reductions may have on other areas of the state. The emission reductions are consistent with the reduction strategies for East and Central Texas.

The commission concurs that the technology and implementation schedule outlined by Alcoa is consistent with the Agreed Order, and that the emission reductions that will result from the boiler modifications will help improve the air quality of the East Texas region.

NFN commented that Alcoa should switch to a cleaner fuel, such as natural gas, or stop burning lignite. This comment was echoed by Sierra Club, SEED, and TCE.

Generally, the commission establishes standards or limits for emissions, not for the type of fuel facilities must use to meet those emission standards or limits. The Agreed Order associated with this SIP revision for the control of ozone establishes emission limits for the three boilers in terms of tons per year of emissions of NO_x, an ozone precursor, and CO. Limits associated with the use of lignite and sulfur dioxide were approved by the commission in 1995 and are incorporated into the SIP.

NFN commented that NO_x emissions are not the only issue. Emissions of sulfur dioxide are also of concern. This comment was echoed by Sierra Club and SEED. Sierra Club also listed acid gases, sulfur dioxide, hydrochloric acid as contaminants of concern.

The purpose of this SIP revision is to reduce emissions of NO_x which is a precursor for the formation of ozone, a pollutant for which the area in which the facility is located is unclassified regarding federal air quality standards. The controls which are required by the Agreed Order are designed to control NO_x.

Henry, Lowerre and ED suggested that the Agreed Order should be modified to remove any argument that Standard Permit No. 42739 is a “permit” for purposes of the partial fee shield created at Section 382.0621(d)(1 and 2), which provides for the imposition of fees on emissions from grandfathered facilities, unless those facilities have applied for a permit by September 1, 2001. Henry, Lowerre suggest adding the following sentence to paragraph 15 of the Agreed Order: “Neither the standard permit referenced in paragraphs 6-10 nor a permit, if any, issued consistently with the option allowed by paragraph 17 is a “permit” for purposes of the partial fee shield created by 382.0261(d), Texas Health and Safety Code.”

ED expressed concern that the Agreed Order could inadvertently become a loophole that allows Alcoa to avoid paying the increased emission fees imposed by the legislature on grandfathered facilities choosing not to obtain a permit, and encouraged the commission to include explicit language in the order that clarifies that obtaining a standard permit for the installation of pollution control equipment (under commission rule 30 TAC § 116.617) does not constitute the type of permitting action contemplated in the commission’s proposed rule 30 TAC §101.27(c)(2) that would allow a company to retain the 4,000 ton cap on emission fees. To address this issue, EDF suggested that the Agreed Order be modified as follows: “The commission should explicitly stipulate in the Agreed Order that the three boilers affected by this order would retain their ‘grandfathered’ status and continue to be subject to the emission fee provisions of the TCAA 382.0621(d).”

SB 766 encourages non-EGU sources in attainment areas of Texas to acquire permits for their grandfathered units, and failure to do so will significantly increase emission fees for certain sources. It is not necessary for approval of the SIP revision that the commission make any determination of whether standard permits in general are the type of permitting action to which the fee shield applies. Nor is it necessary that there is an agreement between the commission and Alcoa as to whether Standard Permit No. 42739 or any other standard permit approved for Alcoa in accordance with the terms of the Agreed Order is a “permit” for purposes of the partial fee shield in SB 766. As discussed above, it is not necessary for the commission to determine whether the reductions in NO_x emissions are appropriate or sufficient for approval of any application submitted under the Voluntary Emission Reduction Permits (VERP) program, the permit program authorized by SB 766. The commission does not need to determine whether these reductions should or should not substitute for reductions required by SB 766 until Alcoa files a VERP application and appropriate review is conducted to determine what control technology meets the VERP statutory requirements or whether the boilers will retain grandfathered status. Therefore, the commission will not stipulate whether the fee shield applies. The commission also acknowledges that the reductions for the SIP are separate from any non-SIP permit program, such as VERP.

One individual supported the adoption of the Citizens’ Implementation Plan (CIP).

The CIP is a plan presented by various citizens groups, including environmental groups, to the commission as a plan for cleaner air in the DFW area. The Alcoa plant is not located in DFW, and therefore the recommendations in the CIP do not apply to Alcoa. However, the CIP recommends that grandfathered industrial plants which are not power plants be required to reduce emissions by

at least 50% from 1997 levels. At this time, Alcoa has made the necessary voluntary reductions necessary for the regional strategy SIP revision.

SEED expressed concern that the aquifers underlying the facility could become contaminated with heavy metals and other toxic materials that may leach from the lagoons, and stressed the need for extensive groundwater monitoring.

The purpose of the SIP revision is to reduce NO_x emissions from the boiler stacks. The commission is not aware that these emissions have or will contaminate any aquifer underlying the plant. Water quality and groundwater monitoring are beyond the scope of the SIP.

Sierra Club and SEED expressed concerns with the environmental impacts of strip mining.

This comment is beyond the scope of this SIP revision.

DALLAS/FORT WORTH SIP

General Comments

DFWIA commented that in Section 3.7 of the SIP and in Table F.4-1 of Appendix F the commission identified three of the four DFWIA boilers for significant emission reductions. The Board's analysis of the reductions to be achieved at these boilers through compliance with the applicable rules for regulation of NO_x indicates that the reductions will be in the range of 6-9%, not the 70% envisioned by the commission. What is the basis for the assumption of 70% reduction in NO_x? They request that the commission describe how the reductions identified in Appendix F were calculated. What criteria did the commission use to determine which boilers would produce reductions.

The DFWIA boilers considered for control were the three Central Utilities Plant boilers rated at 203 MMBtu/hr heat input. Measured baseline emission rates for these boilers were obtained from a representative of DFWIA in August 1998 during the development of the NO_x RACT rules. The measured rates of the boilers were 0.11, 0.12, and 0.13 lb NO_x/MMBtu. An average rate of 0.12 lb NO_x/MMBtu was used to calculate the estimated reduction. The new emission limit of 0.036 lb NO_x/MMBtu represents a 70% reduction from 0.12 lb NO_x/MMBtu. Based on the measured rates and 1996 emissions, the activity levels of these boilers appear to be above the exemption level for two of these boilers and slightly below it for the third boiler. Commission staff assumed that all three boilers would require controls for operational flexibility. The activity level of the fourth boiler, rated at 62.5 MMBtu/hr heat input, appeared to be such that it could qualify for the annual activity level exemption.

Eleven individuals, the Capital Area Metropolitan Planning Organization, and the City of Richardson supported the commission's proposed SIP. The City of Richardson further stated that the control strategies were well thought out and amply reviewed and analyzed using professional technical guidance. Three individuals, the Greater Fort Worth Sierra Club, the Tarrant Coalition for Environmental Awareness, EPA, the City of Fort Worth, the City of Dallas, the City of Cedar Hill, the Texas Clean Air Working Group, and the Fort Worth Chamber of Commerce stated that they appreciate the efforts being made by the commission and the NTCASC. The Fort Worth Chamber of Commerce further commented that the rules the commission proposed, with only minor modifications, will help accomplish the air quality goals without the imposition of federal sanctions. Fort Worth Mayor Pro Tem Ralph McCloud commented that they realize that the purpose of these regulations is to protect the health and well-being of all the citizens of this great state and to that end, that the commission has the City's undying support. NTCASC pledged their assistance in the implementation and enforcement of the control measures that the commission adopts.

The commission appreciates the support.

Four individuals commented that the commission should reduce or temporarily eliminate recruitment of new companies to the area to prevent additional contributions to the problem/implement a three-year moratorium on new industry.

The FCAA requires new sources to undergo a rigorous review which includes application of the lowest achievable emission rate. In addition, new sources locating in the DFW nonattainment area, which is currently classified as serious, must obtain a 1.2 to 1 offset. Therefore, as a result of locating there, there will be 20% less emissions than if the company located in an attainment county.

Three individuals commented that tractor trailer rigs should be banned from freeways during rush hour. Another individual commented that NAFTA traffic should be certified emissions free or the state should disallow their entry. One individual commented that we need to work on regulations for diesel trucks, cars and trains in El Paso. One individual commented that truck/diesel emissions are under regulated. One individual commented that much of the smog problem is caused by out of state and out of country vehicles that travel I-35 and asked why the DFW area is being punished for that. Fort Worth Councilman Clyde Picht commented that the DFW area is getting squeezed by EPA to reduce emissions while the federal government is also promoting NAFTA which is causing a major increase in truck traffic on Fort Worth interstates.

The state is limited in its ability to regulate emissions from this source category. The state is adopting regulations requiring cleaner diesel fuel. However, control of interstate commerce and new engine technology are the responsibility of the federal government. The State of Texas is on record asking for additional reductions from these activities.

Three individuals commented that the view of traffic accidents should be obscured to keep traffic moving and/or work to get accidents cleaned up quicker. One individual commented that police should direct traffic when lights malfunction to keep traffic moving.

The NCTCOG has programs in place that address these emergency response concerns. The commission believes these issues are better addressed at the local level.

One individual commented that the minimum driving age should be raised to remove one year's worth of drivers from the roads. One individual commented that the use of cell phone while driving should be outlawed. One individual commented that use restrictions should be based on how much pollution you produce, therefore industry would pay the most, individuals the least. Two individuals commented that the focus should be on urban sprawl with things like better land-use planning and incentives to infill development.

One individual commented that there should be an increased tax on oil so that alternative energy sources already available will become more economically feasible. Two individuals commented that the gasoline taxes should be raised on a phased in approach so that consumers have time to pursue alternative driving habits as the tax increases. One individual commented that a one-time tax credit or low interest loan should be created for tax payers to relocate to a set distance from their place of employment.

One individual commented that only gasoline station personnel should be allowed to pump gas to help avoid leaking and spilling (as done in New Jersey).

One individual commented that there should be greater use of ground cover or the xeroscape landscaping plans to reduce emissions from lawn care equipment and conserve water. One individual commented that there should be more focus on tree planting and other conservation measures to help lower reflected temperatures during the summer.

One individual commented that a population resolution such as the one the City of Aspen recently passed should be considered for the DFW area. One individual commented that a population council should be appointed to address the issue of over-population. One individual commented that the commission needs to consider options as far as adding to the SIP a plan to deal with population stabilization and optimization

One individual commented that population density is needed to achieve substantial transit ridership and appropriate zoning is needed to achieve population density. Evaluating current zoning laws and taking a holistic approach is necessary

One individual commented that a law should be created making it mandatory for all auto dealers to disclose what the MPG rating is for each car being sold in all of their newspaper and other advertisements.

One individual commented that we should do away with all newspapers to save trees - individuals can get news through television and the internet.

The Dallas Sierra Club, Downwinders at Risk, the Fort Worth Sierra Club, Sustainable Economic and Environmental Development, Texas Campaign for the Environment, Texas Clean Water Action, Texas Public Citizen, Environmental Defense, and the 44 members of the Texas Air Crisis Campaign commented that there should be more focus on smart growth which includes things such as building cities in ways that reduce future smog growth and designing neighborhoods around bike paths, transit stations, and other smog resistant developments.

Two individuals commented that the start of the school year should be delayed to reduce traffic during ozone season as well as reduce emissions from power plants due to the decrease in demand for electricity for air conditioning.

Environmental Defense and the 44 members of the Texas Air Crisis Campaign commented that there should be incentives to reduce VMT. Their ideas included:

- adopting Progressive Insurance Pay-as-you-drive methodology across Eastern Texas where the rate is tied to the number of miles you drive;
- pay at the pump insurance which places a surcharge on each gallon of gas calculated to be equal to the current average cost of liability insurance;
- encouraging lending institutions to offer "location-efficient mortgages" that reward homebuyers for locating in areas that minimize travel requirements;
- encouraging employers to "cash-out" the value of the free parking benefits they provide their employees so that employees who choose not to drive their own vehicle have more take home pay;
- offering feebates on suburban housing - tax suburban housing and use proceeds to subsidize redevelopment in urban areas ;
- commuter choice incentives;
- tax incentives for living near place of employment;
- tax breaks for businesses locating close to mass transit;
- congestion parking and using time of day tolls on commuter roads;
- tax on parking places so that people consider alternative methods of transportation;
- college and university traffic reduction strategies;
- establishing a regional transit authority
- telecommuting and satellite offices

Environmental Defense and the 44 members of Texas Air Crisis Campaign also commented that our plan fails to use strategies that actually save money or at least reduce air pollution at lower costs and at less inconvenience.

The commission has evaluated many of these types of programs and ideas over the past several years. However, there is little to no data regarding the emission reduction potential or the cost to implement these types of programs. Therefore, when staff and stakeholders evaluate these measures against other measures with more information, these do not rise to the top of the list. The commission will continue to review these types of programs as more information becomes available. In addition, for many of these programs the commission has no statutory authority to address.

Environmental Defense and the 44 members of the Texas Air Crisis Campaign commented that diesel back-up generators should be converted to natural gas.

The commission is aware that Atlanta, Georgia has included a similar measure in its SIP. However, the current inventory the commission is using does not include a breakdown of the contribution from these sources. The commission will continue to evaluate this measure for possible inclusion with future plans.

One individual commented that the commission needs to reconsider nuclear power electrical systems because it is the cleanest, safest, and best way to reduce pollution by the recommended 50%.

The commission agrees from an emission reduction perspective that a 100% reduction is better than a 50% reduction. However, there are other environmental concerns associated with nuclear power generation. As each company makes its individual business decision it must weigh all aspects associated with each option.

Danhard, Inc. commented that they design mobile air conditioning and heating systems that allow you to run the air conditioning/heater with an AC power while the engine is running. When the vehicle is stationary it allows you to hook up to a common household outlet instead of a commercial 32 amp. This eliminates the idling of vehicles. It is not for use by your average vehicle, but by things such as ambulances that need to keep medicines temperature-controlled, flower delivery vans that need to keep flowers cool, etc. This system is already in use by the City of Phoenix.

The commission appreciates the comment from Danhard, Inc., however there was not enough information for the commission to evaluate this program at this time. This issue has been forwarded to the commission's Technology Research Team who will be researching and evaluating this type of program for potential use in future planning efforts.

Home Builders Association of Greater Dallas, Waste Management, Dallas Chapter of the Associated General Contractors, Public Citizen, Texas for Energy and Environmental Education, Texas Campaign for the Environment, the Texas Industry Project (via Baker and Botts) and the Houston Construction Industry Coalition (via Benthul & Keen) proposed that as an alternative to the rules which would regulate construction equipment, such as the construction activity delay rule, the commission should consider adoption of a program along the lines of California's Carl Moyer program. The Carl Moyer program is a voluntary heavy-duty diesel emission reduction program which creates incentives for new purchases, repowering, electrification, or retrofits. It is funded to 25 million dollars over five years and has an existing NO_x reduction potential of four tons per day with a 2005 statewide reduction of 15 to 20 tons per day. Although adopting such a program would take a great deal of effort, significant NO_x reductions could be claimed in the SIP.

The commission agrees that such a program could be adopted to be equivalent to the 1-2 ppb of ozone which is realized by the construction activity delay, but that any offsets should also take into consideration the accelerated TIER 2/3 fleet standards. The commission also believes in the spirit of the recommendation for a Carl Moyer type of program to push heavy-duty emissions technology, but must act on the independent will of the Texas Legislature as far as grant funding. Staff is preparing a briefing paper regarding issues, interim solutions, and a statewide pilot program which would be viable for not only DFW but other nonattainment and near-nonattainment areas within Texas.

One individual commented that the commission needs to increase staff because we do not have enough enforcement and we are not getting permits out fast enough.

The commission believes that it has the necessary resources to implement all aspects of this SIP.

One individual commented that our plan does not accommodate the incredible growth rate the DFW area will continue to experience.

The commission has used the latest EPA approved methodology in determining the appropriate growth rate. In addition, the commission is committing to a mid-course review which will review this and other assumptions to ensure the SIP is still on track.

One individual commented that the Wright amendment-law should be corrected since it was intended to protect original bondholders, but is now being considered on second or third bond issues.

This issue is beyond the scope of this proposal.

One individual and the Texas Citizens for a Sound Economy commented that if the air is improving in El Paso as we claim then additional regulations for them are unnecessary and will only hurt the economy.

There are two control strategies that would affect the El Paso area: revisions to the I/M program relating to on-board diagnostics and regulations pertaining to water heaters and small boilers. The requirement for on-board diagnostic testing is a federal mandate for all counties that currently have an I/M program. The commission chose to revise the rule pertaining to El Paso simultaneously with the revisions for affected DFW area counties in order to streamline our processing efforts.

The rules to implement the California standards for water heaters and small boilers is being adopted statewide for two reasons. First, it alleviates some of the manufacturing and distribution problems which arise with a patchwork application. Second, it helps to ensure that essentially all of the new units installed in the nonattainment and near nonattainment areas will emit less NO_x. Since the rules are enforced primarily at the wholesale and retail levels instead of the user level, patchwork rules might allow users to purchase units outside the area of applicability and perform the installation themselves. Under this rulemaking, low-emitting units will be the only units available in all areas of the state.

One individual commented that we need to provide comprehensive monitoring of the air in the transboundary area of El Paso.

There are currently 13 monitors in the El Paso metropolitan area including monitors in Mexico and New Mexico. While the commission is only responsible for maintaining the monitors located within the borders of Texas, staff does receive and analyze the data from all of the monitors in the area.

The Texas Citizens Lobby commented that more monitors are needed in the local areas to get hard data. The City of Dallas commented that additional monitors should be put in place to ensure that monitoring is conducted throughout all counties within nonattainment areas and adjacent areas.

The commission agrees and is currently in the process of installing nine new monitors in the DFW metroplex, including Hood, Johnson, Parker, Rockwall, and Kaufman Counties. One of the monitors is already operational, four are being prepared for operation by early summer, and the remaining five should be ready for operation soon thereafter.

One individual commented that stricter regulations on vehicles and gasoline will cause a hardship on the poor people in the DFW area. The Texas Citizens for a Sound Economy commented that restrictions in the SIP will hurt people now and cause tremendous economic disruption in our state.

The control strategies included in this SIP are necessary in order to comply with federal requirements and to obtain the goal of clean air in the DFW area. If everyone is to benefit from cleaner air, everyone will have to do their share to help obtain that goal. Whenever possible the commission has drafted the rules to mitigate the impacts to lower income citizens.

One individual commented that the commission needs to conduct hearings again so that everyone can participate. The Texas State Inspection Association commented that we need to conduct hearings again, preferably after 6:00 p.m. to allow affected parties the chance to speak. Another individual commented that we need to have hearings that are longer and are in rooms that allow people to stay past 9:00 and that seat more people.

Staff conducted a total of 10 hearings both in the evening and during the day in order to allow people with varying work schedules to attend. Unfortunately staff had no way to know in advance that the facilities reserved would not be large enough to accommodate the number of people in attendance. However, written comments were accepted throughout the comment period regardless of whether the commenter presented them orally.

The City of Athens and four individuals commented that Henderson County should not be involved in any control strategies since they do not contribute to the problem. Henderson County Judge Tommy Smith commented that Henderson County has been arbitrarily selected by NCTCOG to be a member of the DFW CMSA. Judge Smith further commented that Henderson County will not be a pawn for the 4-county nonattainment area and strenuously objects to the proposed and adopted rules. The City of Athens fully supports all strategies being proposed, but only for the four core counties.

The City of Athens commented that they withdraw any offer to voluntarily accept the imposition of any control measures since EPA can not assure that they will avoid an 8-hour nonattainment designation.

Hood County Commissioners commented that Hood County should not arbitrarily be classified as nonattainment because of their proximity to the four nonattainment counties. Hood County Commissioner Ron Cullers commented that Hood County is willing to consider voluntarily implementing most of the state's plan in Hood County, but that it is premature to classify them as nonattainment and to

implement punitive and arbitrary plans when there is no data to suggest that they have an air quality deficiency. Commissioners Cullers further commented that the economic impact of the plan is going to be considerable to Hood County and that the commission should be very careful to make certain that it is justified before it implements any plans. The City of Duncanville commented that Ellis County should be included in the nonattainment area.

Johnson County commented that there is no evidence to indicate that Johnson County contributes to the ozone problem of the other four nonattainment counties. The City of Greenville commented that they are concerned over the proposed strategies because of the lack of evidence that they contribute to the problem.

The City of Cedar Hill commented that the surrounding counties should be included in the SIP.

Ellis County and State Representative Jim Pitts commented that Ellis County was not represented on NTCASC and that Ellis County agreed to cooperate but did not intend that such cooperation would extend to agreement of all measure recommended by the NTCASC prior to input from the outlying counties.

State Representative Jim Pitts commented that the eight outlying counties were asked to shoulder much more of the burden than what is reasonable. It is not appropriate for Ellis Co. to be expect to implement nearly every measure being considered when there is no scientific evidence that they contribute significantly to the problem. If there are indications that emissions already nearing excessive levels are coming into the area from Louisiana, EPA should make sure that the originator of the emissions is held accountable.

The City of Cleburne commented that they desire to help improve the air quality of North Central Texas but that it is sometimes unfeasible for citizens in small communities and rural counties to finance all of the requirements needed with their own resources.

The City of Cedar Hill, the City of Duncanville, and the NTCASC encouraged the commission to adopt rules and strategies for emissions from outside the DFW nonattainment area but contributing to the nonattainment area.

The City of Duncanville urged the commission and the NTCASC to seek reductions from Ellis County's sources comparable to the requirements for sources in four core counties.

The State of Texas faces a significant challenge to develop and implement a plan to bring several major metropolitan areas of the state back into compliance with the current one-hour ozone standard established by the federal government under the FCAA. The commission continues to work closely with local officials and others to craft a plan which equitably shares the burden of emission reductions necessary to achieve this objective.

In the rules proposed as part of the SIP for the DFW area, the commission included certain statewide, regional, and local emission control measures which, taken together, would allow the commission to demonstrate attainment of the standard. Certain of these strategies were proposed for the entire DFW CMSA, and in particular for the eight counties that surround the current one-hour nonattainment area. These counties were chosen because they encompass part of the DFW

CMSA and because of their contribution to the background ozone coming into the DFW area from the eastern Texas region.

Upon further evaluation staff believes that it may not be necessary to impose the same set of measures on Hunt, Hood, and Henderson Counties at this time, given their current population, proximity, and commute patterns and volume. Future growth could require a modification of this approach. These counties would remain subject to any federal, statewide, or regional (IH 35 and east) components of the final SIP package. Also, any additional emission control measure that these counties choose to adopt and implement would be beneficial to the DFW attainment demonstration, and would bolster our arguments to EPA that these counties not be designated as nonattainment.

The commission expects the remaining suburban counties around DFW (Ellis, Johnson, Kaufman, Parker, and Rockwall) to implement a suite of control measures which contribute appropriately to the plan for meeting the current one-hour ozone standard in the area.

The commission has asked these five counties to commit to the following: 1) participate in comprehensive air quality analysis, including modeling; 2) support timely implementation of local emission control strategies, including a vehicle inspection and maintenance program to demonstrate attainment of the one-hour standard in the DFW area; 3) support local ozone monitoring; and 4) recognize that further reductions could be triggered should monitoring indicate a violation of any applicable national standard.

Regarding the future eight-hour designation, the commission has made it clear to EPA that it is not necessary to make the broad designation of full CMSA in order to address the air quality challenges in the north Texas area. The commission will use its best efforts to persuade EPA that a nonattainment designation for the suburban counties under the eight-hour standard is not necessary to reach the clean air objectives that everyone desires. The commission has, in fact, already discussed this strategy with EPA Region 6 Administrator Gregg Cooke. The commission has been advised that Mr. Cooke has raised the issue with EPA in Washington, D.C. The commission will continue to push for this common sense solution at every opportunity.

The Senior Citizens Alliance of Tarrant Co., the League of Women Voters of Tarrant County, the Tarrant Coalition for Environmental Awareness, EPA, the Dallas Sierra Club, and 13 individuals commented that the commission must allow room for error with our proposed SIP. It is highly unlikely that all strategies will be 100% successful, therefore 124.9 ppb does not allow for a margin of error.

The commission agrees with the need to ensure that the SIP achieves the clean air goal. That is why the commission continues to evaluate additional measures. In addition, the mid-course review allows the commission another opportunity to reevaluate all strategies to assure that the attainment demonstration is still on track.

One individual commented that the commission did not publish any information about the hearings or about our proposals.

The commission published the hearing notice and all proposed rules in the *Texas Register* on January 1, 2000. The hearing notice was also published in newspapers in Austin, Beaumont, Dallas, El Paso, Fort Worth, Houston, Longview, and Tyler. In addition, all information has been available on the commission's web site since mid-December.

Six individuals commented that they oppose Commissioner Marquez' involvement with the cement industry and/or ask for him to resign.

Commissioner Marquez' involvement as a consultant to the cement industry was prior to his appointment to the TNRCC in 1995. Therefore, because substantial time has passed since he had any involvement with the cement industry, there is no basis for his recusal on matters involving that industry.

Three individuals commented that the public needs to be more informed about the specific air pollutants and the effects each has on health. Sierra Club Lone Star Chapter commented that the SIP should contain provisions for public education that encourage commercial radio and television broadcasters to support clean air efforts with public service announcements and special reports. One individual commented that we need to announce warnings during bad ozone days to keep kids inside at recess.

The SIP is a regulatory document which describes how the state will attain and maintain the NAAQS, therefore it does not address many public education programs. However, the commission does agree that public education on air quality issues is important. The commission currently operates many public outreach campaigns especially for those programs which directly impact the public, such as the vehicle I/M program.

Individuals can now sign up to receive automated e-mail notifications from the commission of ozone action day forecasts (called "watches" in Houston) and near real-time ozone warnings in the Houston/Galveston area, based on measured ozone concentrations. Additionally, EPA is revising its Air Quality Index to enhance the public's understanding of air pollution across the nation. Previously known as the Pollutant Standards Index, this uniform air quality index is used by state and local agencies for reporting on daily air quality to the public. The Index provides general information to the public about air quality and associated health effects.

The Dallas Chapter of AGC of America commented that if NOAA can predict weather patterns as far as five days in advance, the commission should be able to predict ozone action days sooner than just the day before.

The commission's Monitoring Operations Division provides a three-day forecast of Air Quality Index levels for all of the Texas ozone action forecast areas on the EPA AIR Now web page. However, as with weather forecasts, ozone action day forecasts are not precise enough to base a regulatory process on.

Sierra Club Lone Star Chapter commented that the 1999 SIP for DFW is inadequate for various technical reasons. Sierra Club Lone Star Chapter also commented that our SIPs are based on significantly inaccurate emissions inventories for different source categories and contain numerous uncertainties and errors, especially mobile source budgets for HGA and DFW. Sierra Club Lone Star Chapter also commented that our SIPs have been nearly in every case late, too narrow in their focus, short on specifics, and without coherent plan.

One individual commented that the commission is protecting big businesses, not the citizens of Texas or the environment. Environmental Defense, the 44 members of Texas Air Crisis Campaign, and one individual commented that our plan is not bold enough to protect public health. Fourteen individuals commented that we need to implement the strictest measures possible because our SIP doesn't go far

enough. Sierra Club Lone Star Chapter, the Senior Citizens Alliance of Tarrant County, and seven individuals commented that the commission needs to make public health the number one concern and/or that the commission needs more health based rules.

Texas Public Policy Foundation commented that alternative, innovative, and market-oriented approaches could provide equal or better environmental performance while causing less negative impacts.

The Citizens for Healthy Growth commented that Texas is number one in the nation in: 1) criteria pollutants emissions causing ozone pollution, 2) total number of hazardous waste incinerators, 3) having the largest sludge dump in the country, 4) the production of carcinogens benzene and vinyl chloride, and 5) the air releases of toxic chemicals, yet Texas is number 49 in environmental spending. This is all because the commission protects the polluter and penalizes the public.

Three individuals commented that the commission is procrastinating once again in addressing DFW's air pollution problems. The federal government should not have to make threats before the commission does something about the problem. The Fort Worth Chamber of Commerce commented that the imposition of sanctions and penalties by the federal government is not an acceptable solution.

The commission has worked within the time constraints placed upon it by EPA to develop the most cost-effective plans which attain the air quality goals based upon the best available science. The commission has worked diligently with EPA and stakeholders to ensure that this SIP is approvable and that it meets the air quality goals.

Automotive Service Professionals commented that they were disappointed by the lack of communication and involvement between the commission and their industry.

The City of Dallas commented that regional stakeholders, including public and private sector leaders must take an active role in developing an appropriate attainment strategy for their region. The City of Dallas commented that the commission should utilize the regional stakeholders as a resource to facilitate information gathering, community education, and consensus building. The City of Dallas commented that the commission should clearly define opportunities for ongoing local participation in SIP development, and within the confines of the regulatory requirements we should incorporate input to the greatest extent possible.

The City of Dallas commented that information must be made readily available, on a timely basis, to all involved participants. The City further commented that the commission should conduct the SIP development process, in consultation w/regional stakeholders, to ensure to the greatest extent possible that regions are not subject to EPA sanctions or found in violation of conformity requirements.

The City of Duncanville and the City of Cedar Hill encouraged the NTCASC to work with the commission to develop a plan which recognizes public health and safety issues, has public acceptance and is approvable by EPA.

The Citizens for a Safe Environment, the League of Women Voters of Dallas, and nine individuals commented that there should be more participation from community and environmental/health representatives on the steering committee.

In order to develop local control strategy options to augment federal and state programs, the DFW area established a North Texas Clean Air Steering Committee made up of local elected officials, business leaders, and other stakeholders. Specific control strategies were identified for review by technical subcommittee members. In addition, the NCTCOG hired an environmental consultant to assist with the analysis and evaluation of control strategy options. The consultant was responsible for presenting the findings of the technical subcommittees to the NCTCOG air quality policy and steering committees for final approval prior to being submitted to the state. In addition to the public hearings held by the commission, this committee held numerous public meetings at which public participation was included.

The City of Richardson commented that a mid-course review was discussed by the Steering Committee but is absent from this SIP revision. The City recommends including the review as part of the SIP requirement.

The mid-course review was discussed in Chapter 7 of the SIP narrative for DFW. As the name implies, the mid-course review is due to EPA at the mid-point between the submittal of the attainment demonstration and the date the area is expected to reach attainment. As the language in Chapter 7 indicates, the commission will be submitting a mid-course review by May 2004.

EPA commented that if any program is eliminated or reduced it must be replaced with another program.

The commission is very cognizant of this fact and is making all necessary adjustments to assure that the ozone standard is still attained.

NTCASC and EPA commented that the commission must obtain the necessary authority to implement the programs being considered, either through state rulemaking or local ordinances.

The commission will be adopting rules, working with local governments to obtain the necessary local ordinances, and working with the necessary state agencies to ensure that all programs being considered are enforceable.

The City of Dallas, the City of Cedar Hill, the City of Duncanville, and the NTCASC commented that the commission/NTCASC should continue to review additional control measures and seek to amend or enhance strategies if beneficial changes or substitutions are developed. The City of Cedar Hill, the City of Duncanville, and the NTCASC commented that the commission, the NTCASC and various task forces should continue to work with industry to bring forward new technologies or different approaches for obtaining required reductions.

The commission agrees. As discussed earlier, the commission will be submitting a mid-course to EPA by May 2004. In preparing for this submittal the commission will continue to evaluate alternative and/or additional strategies to benefit the air quality, including new technologies. The commission is committed to working with the local stakeholder groups as we prepare for the mid-course review.

The City of Dallas, the City of Cedar Hill, the City of Duncanville, and the NTCASC commented that the commission should develop a schedule for the implementation of each measure within the timeframe required to establish all necessary enforcement authority and funding.

The implementation schedule for each strategy adopted is outlined within the rule language. For measures not requiring rules, the information can be found in the SIP narrative. For those programs requiring additional authority or funding, the implementation schedule has been adjusted to take this into account.

The City of Cedar Hill and the City of Duncanville commented that they will cooperate with the commission and EPA to adopt local ordinances and rules to further ensure expeditious implementation and enforcement of clean air control measures.

The commission appreciates the support.

DFW Airport commented that Table 6-1 identifies an aggregate growth rate of 1.7% for area and non-road sources. They request that we identify the individual growth rates of the emission categories that comprise the area and non-road budgets.

Commission staff decided to use growth of human population in the modeling domain from 1995/1996 to 2007 as a surrogate for area and non-road emissions growth for the future case. Population growth should constitute a reasonable surrogate for activity growth in most area and non-road categories, which consist largely of such items as construction, lawn & garden, pleasure boating, house painting, etc., although a few categories such as locomotives and oil and gas production are only indirectly related to human population.

The population for the DFW four-county nonattainment area and the remainder of Texas in the modeling domain was obtained from the reports “Texas Comptroller of Public Accounts, Winter 1997-98 County Forecast”; and the “Texas State Data Center at Texas A&M University.” The population estimates for the remainder of the modeling domain were obtained from the projection of the 1990 US Census data (series A) found on the federal census web-site at the following internet address: www.census.gov/population/projections/state/stpjpjpop.txt. These population growth numbers were used to project the 1995/1996 emission inventories to the attainment year of 2007.

One individual asked why it took until June 1999 to adopt a clean gas program and why isn't it a statewide program.

As more and more scientific analysis proved the importance of a regional control program, the commission outlined a five-step regional approach in January 1998. One of the concepts included a cleaner gasoline. The commission refined the geographic boundaries of the region through many months of intensive analysis. These efforts came together when in June 1999 the commission adopted the first parts of its regional strategy including the cleaner gasoline rule which covered a 95-county East and Central Texas region. Cleaner burning fuel, reformulated gasoline has been required within the DFW nonattainment area since 1995.

One individual commented that Texas should set an example by reducing greenhouse gases.

The issue of greenhouse gases is beyond the scope of this plan.

One individual commented that Section 1.1 indicates that we rely heavily on federal rules, but we need to adopt strategies that will assure reductions in case the federal government does not follow through with its rules.

There are three partners involved in the development of an effective control program, federal, state, and local entities. Each partner must commit to do their part in the process and the plan must rely on that commitment. The mid-course review also provides an opportunity to reevaluate strategies should any unforeseen problems or delays occur.

One individual commented that the metroplex should be decentralized and that development should be spread out in a Southwest to Northeast direction.

This issue is beyond the scope of this plan.

One individual commented that additional interstate by-passes should be created, one for I-35 to the east of Dallas and an east-west passing north of Dallas.

The NCTCOG is the metropolitan planning organization for the DFW area and has the responsibility for the area's roadway network. This comment will be forwarded to the NCTCOG for their consideration.

One individual commented that the commission needs to accelerate our timeline for cleaning the air - do it in two years not seven.

The commission is committed to ensuring that the identified measures in the DFW SIP are implemented as expeditiously as possible. This involves allowing sufficient time for any engineering planning, design, purchasing, installing, and testing of equipment. The commission also factors in the availability of the technology that may be required. Many of the strategies implemented by this package will be in place long before 2007, some by 2002.

Environmental Defense and the 44 members of Texas Air Crisis Campaign commented that the commission has ignored the compelling evidence that they and other groups have provided in writing during the last five years stating that NO_x reductions both locally and upwind of DFW were required to clean the air.

The commission agrees that over the past few years the focus of ozone control programs has shifted nationally in response to new evidence. In late 1997, Texas began analyzing these new ideas and has shifted its focus as well. The commission will continue to evaluate the direction of the program and make any necessary changes to the course as a part of the mid-course review.

Environmental Defense, the 44 members of Texas Air Crisis Campaign, and one individual commented that our plan is too focused on obtaining short-term approval from EPA and does not focus on reducing other pollutants such as CO₂, SO₂, particulates, toxics, and mercury.

The commission's priority is to attain and maintain the health-based standards. The only standard not being met in the eastern portion of Texas is ozone. Therefore ozone is the focus of this plan. The commission has other rules and programs in place to limit the emissions of the other pollutants named.

State Representative Tommy Merritt asked the commission not to include the Longview/Tyler area in with counties in the DFW area or start squeezing some of the hard difficulties in that region over on them.

The commission should continue important local input especially on issues which are unique to the border region (Texas/Louisiana). A one size fits all solution does not fit the Longview/Tyler area.

Central and Southwest/SWEPCO expressed concern that Northeast Texas is being asked to spend a lot more money to benefit the DFW area based on a very questionable model that assumes that the Northeast Texas area is contributing to DFW's problems.

One individual commented that many of the strategies proposed for the East Texas region are too restrictive and have too little benefit to the region as far as air quality. One individual commented that since areas like Tyler/Longview, Austin, and San Antonio are very close to nonattainment like DFW we need to start thinking regionally and/or statewide rather than just on a 4 or 12 county basis.

The commission has conducted air quality modeling and upper air monitoring that found that regional air pollution should be considered when addressing air quality in Texas' ozone nonattainment areas. This work is supported by research conducted by OTAG, the most comprehensive attempt ever undertaken to understand and quantify the transport of ozone. Both the commission and OTAG study results point to the need to take a regional approach to controlling air pollutants.

One individual commented that there is not a serious air quality problem in East Texas but a regulatory compliance problem.

Within the past few years the state of the science has evolved indicating that NO_x is the pollutant of concern for ozone. The commission's own studies have indicated this as well, particularly in East Texas. Since NO_x emissions have not been significantly targeted for controls to date, the commenter's assertion of a compliance problem is incorrect.

One individual commented that some of the million dollars the commission will be using in FY2000 should be spent for modeling and gathering valid scientific data in the East Texas region to try to ascertain why that region is having exceedances.

In the summer of 2000, a team of researchers will undertake the largest air quality study ever done in the State of Texas. The study is being designed to improve understanding of the chemical and physical processes that control air pollutant formation and transport along the Gulf Coast of southeastern Texas.

TexAQS 2000 will involve experienced air quality field researchers from all over the United States. Plans call for six to eight weeks of intensive sampling during August and September of 2000. Measurements of gaseous, particulate, and hazardous air pollutants will be made throughout the eastern half of Texas, using both ground stations and aircraft.

One individual commented that they plan to suggest to the Sunset Committee that the commission is no longer necessary. Another individual commented that we need to prove ourselves to the Sunset Commission.

The commission embraces the sunset process and is completely open to new ideas and changes that may result from the review.

The Texas Public Policy Foundation commented that the commission's proposal is not very reliable due to unsupported data. Two individuals commented that our proposals will fail because they are not based on sound engineering principals.

The commission disagrees. The proposed SIP is based on the most sophisticated air planning tools available.

The Reason Public Policy Institute commented that the commission needs a more powerful approach. They further commented that we need to learn from mistakes as well as the successes from Los Angeles, not just blindly copy them.

The commission has studied many of Los Angeles' successes and failures and has tried to build on them to the extent possible.

The Texas Public Policy Foundation commented that the commission needs to balance what we consider to be the importance of improving air quality in the environment with the economic and social needs that we have to consider and balance.

The commission agrees. The balance between improving air quality and social and economic considerations is one of the issues on which the commission bases its proposals.

The Texas Public Policy Foundation commented that people spend more time indoors, therefore need to focus on the quality of indoor air.

The issue of indoor air quality is handled through the Texas Department of Health and is therefore beyond this scope of this plan.

One individual asked why an ozone standard even exists since it is impossible to attain due to the weather and temperature inversion.

Congress has determined that sufficient health concerns exist to identify ozone as one of the six criteria for which EPA has established health-based standards. The commission disagrees that the standard is unattainable as the current plan demonstrates.

One individual commented that the commission does not tell people where the pollution is coming from. We should give percentages that indicate which segment produces which percentage of the emissions.

The commission disagrees with this comment. Detailed emissions inventory data is readily available upon request. A detailed inventory is a key building block to the accurate development of an effective control strategy. It was used extensively by the NTCASC as they developed their recommendations. The entire process was open to the public.

One individual commented that laws should be made that would restrict the cutting down of trees since trees are what cleans the air.

The commission has no control over the planting or cutting down of trees. In addition, since some trees cause emissions that contribute to the ozone problem the commenter is not correct in stating that trees are what cleans the air.

One individual commented that if we can send people to the moon we should be able to build giant suction fans along the freeways in downtown to suck in the pollutants and recycle them through a filtering system.

To the commission's knowledge this technology does not exist and the SIP must be based on proven technology.

The Texas Clean Air Working Group commented, through a report by Dr. M Ray Perryman, that it is readily apparent that the economic well-being of the entire state is inextricably linked with ongoing expansion of core activity in the potential nonattainment areas.

The commission concurs with this comment. Air pollution is a statewide problem, therefore the effects on the economy are also statewide.

Texas Public Policy Foundation commented that emissions trading is another innovative, market-oriented approach to reducing stationary-source emissions.

The commission concurs and is currently in the process of developing an emissions trading program for a majority of the stationary sources impacted by the SIP. It is anticipated that a program will be proposed in the summer of 2000.

Texas Public Policy Foundation commented that focusing on permits is counterproductive. TPPF commented that permits focus on compliance, not performance; that permit programs are difficult to reform; and that permit programs create adversarial relationships with the regulated community.

The control strategies that are included in the SIP do not rely on permits, but on performance based standards. These strategies were developed on a rule by rule basis or through the general authority of the SIP. Entities will be required to comply with these rules regardless of what their permit allows. Therefore, permit issues are beyond the scope of this plan.

Two individuals commented that diesel buses should be replaced with natural gas or hydrogen powered buses. One individual commented that all city fleets should be required to be electric. One individual commented that dirty diesel engines in locomotives, trucks, buses, and off-road equipment should be replaced with alternatively fueled engines. Four citizens commented that both on-road and off-road gasoline powered fleets should be replaced with alternatively fueled vehicles.

The commission supports the emission reductions through the use of cleaner running engines. The Texas Clean Fleet program requires local government fleets, private fleets, and transits in the DFW, the HGA, and El Paso nonattainment areas meet new purchase requirements for their fleets with LEVs, regardless of the type of fuel they are operated on. The commission is also adopting requirements for most non-road construction equipment that will require the accelerated purchase of Tier 2/Tier 3 cleaner running engines. The commission also supports Department of Energy initiatives requiring the purchase of alternatively fueled vehicles.

Two individuals commented that there should be incentives for people to use electric lawn equipment instead of gasoline. One individual commented that all lawn equipment should be banned on ozone action days. Four individuals commented that drive throughs should be banned. One individual suggested a ban, or at least a construction restriction of new drive throughs. Five individuals commented

that the commission should ban or implement controls on smaller engines such as leaf blowers, weed eaters, and personal water craft. Thirteen individuals commented on the need for emission controls on lawn equipment, personal water craft, and limited drive through-lane usage.

The commission has included variations of the commenters suggestions within the DFW area's VMEP Program for SIP credit. The VMEP program includes such elements as: lawn equipment initiatives to delay use after peak morning hours; drive through lane alternative programs during ozone season; and limitations on personal water craft usage during early morning hours during ozone season. EPA published rules for spark ignition engines in July 1999 that include more stringent emission levels and new provisions to ensure that lower emission engines are being developed. Non-handheld engines should have a 59% reduction of hydro carbons and NO_x beyond the current standards, and handheld engines should have a 78% reduction in hydrocarbon and NO_x emissions beyond the current standard. These new standards will be phased in from 2001 - 2008.

Four individuals commented that there should be a surtax on SUVs and light trucks to offset the cost of their additional emissions. One individual commented that there should be a license renewal rate fee based on the fuel efficiency of your vehicle. Two individuals commented that a parking tax should be implemented on cars parked at sporting events to encourage people to use the already existing shuttle services. Seven individuals commented on the need for usage fees or surtaxes on high emitting vehicles.

Establishing vehicle usage fees or a surtax on specific vehicles based on additional emissions that a vehicle emits are beyond the scope of this rule. This type of fee or tax initiative would require legislative action.

The Greater Fort Worth Sierra Club commented that all boats and other two cycle engines should be required to meet clean emission standards or be replaced with four cycle engines

The commission is working with local areas regarding voluntary initiatives that can be taken to reduce non-road pollution sources. These elements are included in the DFW area's VMEP Program. They include such programs as lawn equipment initiatives to delay use after peak morning hours and discouraging personal water craft usage during early morning hours during ozone season. The EPA has developed federal rules that will regulate these small spark-ignition non-handheld and handheld engines, as well as requiring progressively more stringent standards for gasoline outboards and personal water craft engines that will be phased in from 2001-2008.

Three individuals commented that the commission needs to do a better job of publicizing the smoking vehicle number.

The commission agrees that publicizing the Smoking Vehicle Hotline is important. The commission wants to ensure that reporting smoking vehicles is fast, easy and convenient for the public. A new email address has been developed to receive information on smoking vehicles at www.smokingvehicle.org. Reports can also be faxed at 512-239-2050 or called in at 1-800-453-SMOG. Local areas are encouraged to take the initiative to promote the Smoking Vehicle hotline in their area to increase awareness.

Four individuals commented that unattended vehicles of all kinds should be outlawed (except for emergency vehicles that are in emergency mode).

Outlawing unattended vehicles of all kinds is beyond the scope of this SIP revision.

Modeling Comments

EPA commented that the level of emission reductions assumed for point sources in surrounding states is unsupportable, and that “In order to address our completeness and approvability concerns, the commission must remodel using more appropriate projections. growth projections assumed in surrounding states”.

Based on emissions trends observed in all parts of Texas, the commission expects emissions to decline in the surrounding states. However, in response to EPA’s comment, the commission has replaced the 30% reduction assumption with the assumption of no change between 1995-6 and 2007. This change was applied to Louisiana, Mississippi, Oklahoma, Florida, and Arkansas (reductions assumed in the states subject to the NO_x SIP call were included). Modeling was conducted under these new regional growth assumptions, and the results are included in final SIP (Chapter 6, Section 6.3 Weight of Analysis).

EPA commented that the March 20, 1999 SIP was found incomplete, and that consequently, no parts of that submission are pending before the EPA except for certain rules. EPA stated that “The TNRCC must resubmit all necessary elements of the 1999 submission in final submittal.”

Copies of technical documents have been added as Appendix Q.

EPA stated that there is confusion between the model runs conducted to select control strategies (D29 and earlier) and that used to demonstrate attainment (D30). EPA stated that the modeling related to Strategy D30 should receive the same level of documentation as the earlier strategies. EPA also commented that all the modeling discussions should be in Chapter 3, rather than discussing Strategy D30 in Chapter 6 under Weight of Evidence. EPA concluded that “The TNRCC should revise the documentation to clarify the various cases and control strategies and specify which cases and control strategy are the final ones.”

Control Strategy Run D29 was developed with support from the Clean Air Steering Committee. At the time the Committee decided to move forward with plans to implement various control strategies, the committee supports some pending changes to the emissions inventory. These changes were:

- (1) an improved biogenic model, which would change the inputs used in the photochemical model**
- (2) changes to the DFW Airport emissions inventory, based on updated information from the airport**
- (3) inclusion of electric generating facilities and cement kilns that were permitted to operate within a 100-mile range of the DFW areas (requested by EPA)**
- (4) changing the electric generating facilities point sources to a 3-year average (96-98) over a 3-month period (July - September) (Requested by EPA)**
- (5) banked emissions in the BPA area were included (requested by EPA)**

(6) On-road NO_x emissions were adjusted to account for incidents (accidents, etc.) (Requested by NCTCOG)

(7) Federal heavy-duty gasoline vehicle standards were included.

Because of the large number of changes made, the selected control strategy was applied (D30).

The commission has revised the SIP to clarify the relationship among the control strategies, and has included additional documentation related to the modeling using Base 5.

EPA commented that Appendix F on page F-2 states that the report detailing the development of the NCTCOG's 2007 link-based on-road mobile source emissions inventory is not available until late January 2000. This report should be submitted with the final SIP.

The commission has received the report from NCTCOG, and has included it as a supplement to Appendix F in this final SIP submission.

EPA commented that the commission had ignored point source growth in the SIP submittal, and reiterated three suggested approaches that it had proposed in an August 23, 1999, comment letter on the BPA Phase I submittal which could be used for the DFW attainment demonstration.

The draft SIP document is somewhat ambiguous about how growth was handled in the DFW 4-county area. In fact, non-EGF point sources were grown using emission trend data, but (as stated in the draft SIP document), this approach produced almost no change in emissions in these sources from 1996 to 2007. The EGFs however were handled entirely differently. The commission's modeling staff researched permit applications for planned EGFs within 100 miles of the DFW area and created new sources to add to the 2007 inventory. Planned allowables were used to assign emissions from these planned sources. This approach was implemented when the permit application analysis was completed, so was first included in the modeling in Strategy D30.

Since there were no new pending EGF permits in the four county area it is unlikely that new facilities will be constructed in the four-county area in the near future, it is not appropriate to grow nonattainment area EGF emissions using an economic growth model. The commission believes its innovative approach provides a much more realistic prediction of future EGF emissions than does any on EPA's proposed methods. The commission has revised the SIP language to clarify and amplify upon the way growth was modeled.

EPA commented that any emission reduction credits that were not modeled in this DFW attainment demonstration must be removed from the bank and cannot be used for permit netting and offsets in the DFW nonattainment area. Emissions that were banked and included in the modeling must be certified again before they can be used in the DFW nonattainment area.

The commission determined that in the DFW nonattainment area as of 7/1/96, the bank contained 282.9 tons/year (0.77 tons/day) of VOC emissions and 4.9 tons/year (0.013 tons/day) of NO_x emissions. The point source emissions in the final control strategy (documented in the revised SIP document) were adjusted to include these emissions, minus a 20% reduction to account for the Serious nonattainment area offset. The NO_x and VOC emissions added back to the DFW point source inventory were 0.01 tons/day and 0.62 tons/day, respectively.

EPA commented that the commission has not provided adequate justification for the use of the CAMx model in the DFW area, and that the commission did not present enough diagnostic and sensitivity tests to demonstrate that CAMx would be an acceptable replacement model for UAM (the regulatory model). Region VI lists as an example their concerns with relatively shallow effective mixing heights. Region VI also states that since the commission has switched from CAMx version 1 to CAMx version 2, the commission needs to document the model differences and justify the use of the newer version in the DFW area.

The commission disagrees with EPA's contention that we have not provided adequate justification for use of CAMx in the DFW area. As was detailed in the previous SIP dated February 24, 1999, the commission performed an extensive suite of sensitivity and diagnostic tests in accordance with EPA Guidance, with the exception of a sensitivity test related to the mixing height. Since modern photochemical models use vertical diffusivity in place of a mixing height, such a test is not possible. The commission's staff experts have explored the possibility of running a substitute sensitivity related to the vertical diffusivity coefficients, but have been unable to devise a meaningful test. The commission has asked Region VI for guidance on how such a test should be performed, but has not received a response to this request.

It should be pointed out that EPA has already accepted the results of CAMx modeling to set the national NO_x budgets as part of the OTAG SIP call without any specific justification. Further, the EPA recently employed a contractor to model the El Paso/Juarez domain for both ozone and carbon monoxide using CAMx without requiring the specific justification for model selection or validation of mixing height computations that they are asking of the commission.

The commission also disagrees with EPA's contention that the modeling includes relatively shallow effective mixing heights. Since the CAMx model does not use a mixing height *per se*, the commission assumes that the comment relates to the level of vertical mixing in the model. The commission has provided documentation to Region VI showing that the model mixes above 2000 meters in mid-afternoon, which the commission's meteorologists believe to be reasonable for the DFW area.

Finally, the SIP document has been revised to include additional discussion of the differences between CAMx Version 1 and CAMx version 2.

EPA commented that adjustments made to the gridded, model-ready on-road mobile emission files to account for new information such as Tier II/low sulfur and Texas clean gas should be processed through EPA's mobile source factor model and included in the final submittal.

In the same letter, EPA provided tons per day reductions for Tier II vehicles from the MOBILE6 model in tons per day reductions

Some clarification of this comment was necessary, since the EPA's mobile source factor model, MOBILE5, is not capable of processing Tier II/low sulfur or Texas clean gas. Region VI indicated in a phone conversation on 2/17/00 that the comment actually refers to the way emissions were applied to the gridded inventory. The commission used an across-the board reduction applied to specific groups of counties. A better approach would be to apply reductions before the gridding process so that specific controls could be selectively applied to the appropriate vehicle classes (e.g. Tier II/low sulfur would apply only to gasoline-powered vehicles).

The commission agrees in concept with EPA's comment. However, it is not feasible to re-process the mobile source emissions from start to finish each time a new factor is proposed as part of a control strategy. The raw emissions data is provided to the commission as hourly emissions for each vehicle class on each link in the travel-demand model, representing hundreds of megabytes of data for a single episode day. Reprocessing and quality-assuring the emissions files would require several days each time a change was made. Thus the commission has developed an array masking technique which it uses to model changes to the on-road mobile sources. The commission is unable to process this information in the method EPA is proposing.

The commission is currently investigating the use of alternative emissions processing techniques which may allow on-road mobile source emission controls to be modeled in a more realistic manner. Unfortunately, this effort will not bear fruit in time for inclusion in the current SIP submittal. If the commission succeeds in finding the appropriate tools, it plans to use them in modeling for the mid-course review. The commission has incorporated EPA's Tier II vehicle reductions using Mobile6 factors.

EPA commented that the procedure used for excluding data from the future design value calculation (described by reference to an article by Smith, et. al., in *Proceedings of the Air & Waste Management Association 92nd Annual Meeting and Exhibition*) is not representative of the typical procedure for the future design value method in a WOE analysis. EPA also commented that the commission needs to supply an acceptable justification for the "Smith" procedure, since it is not contained in any EPA draft or final guidance.

The "Smith" procedure (more appropriately described as the "Zhao" procedure) was developed based on EPA's draft guidance for 8-hour ozone attainment demonstrations. The commission is not aware of any draft or final guidance describing the calculation of future design values for 1-hour demonstrations. However, the criteria for exclusion of data from the calculation parallels closely the criteria developed by EPA for the 8-hour calculation. Simply put, data points are excluded when the modeled values are much lower than a monitor's design value. The reason for this exclusion is that on occasion nearly any monitor can lie upwind of the local ozone plume. In such cases, the modeled ozone concentration near the monitor will not likely respond much to local controls. Inclusion of these data points would then indicate little benefit, regardless of the efficacy of the modeled control strategy. The ultimate result would be that the effectiveness of control strategies would be severely undervalued in the future design value calculation.

EPA commented that at a minimum, the current design values for these two years should be used in calculating the future design value.

The commission has revised its future design value calculation to use a multi-year average design value. The revised design value calculations are included in this SIP as part of Chapter 6.

EPA commented that the future design value calculation should not include start-up days or days for which the model does not predict an exceedance or provide adequate performance.

The commission believes it is appropriate to include days which have high modeled ozone concentrations, even if there are no modeled exceedances of the standard on those days. This approach is more broad-based and more representative of overall air quality in the region. However, in response to this comment, the commission has calculated the future design value based

on only the days showing modeled or monitored exceedances of the 1-hour ozone standard. This design value calculation is included in this SIP, along with the original calculation, in Chapter 6.

EPA commented that the commission's WOE trend analysis is not calculated according to EPA guidance (pages 6-34, 6-39, and Fig 6.3-4). According to EPA's *Guideline for Regulatory Application of the Urban Airshed Model*, this procedure calls for extrapolating the most recent 10-year normalized trend line to 124 ppb. The commission extrapolates a trend line which begins in approximately 1982. This trend is substantially different than a trend line using only the last 10 years (i.e., 1989 to 1998). A trend line of the monitored design value based upon the latest 10 years is nearly flat and would not project attainment until after the year 2020.

The commission acknowledges that, while the longer term trend indicates substantial improvement in air quality, the trend over the last ten years is relatively flat, and in fact stated this observation in the SIP document. The conclusion drawn in the SIP, that "existing regulations are sufficient to hold the line against ozone pollution, and with the substantial reductions offered through this SIP, we may expect to see a significant decline in the ozone design value in the near future" appears to be entirely supportable by the data presented. The document EPA quotes is a guidance document, not law, regulation or policy. Most statisticians would argue that the more data points that you have the greater your confidence. It is also important to note that past efforts have concentrated on VOC regulations. The current rule packages will result in large NO_x reductions. The commission does expect the DFW area to attain the ozone standard in 2007.

EPA commented that since the state is submitting the July 3, 1996, episode day as one of three primary episode days to satisfy the episode days requirement and it's performance is within EPA guidelines the episode can not be used as an element of WOE.

The commission believes that its discussion of the July 3 episode day constitutes a valid WOE argument for two reasons:

First, the modeled peak is extremely high compared with monitored data and with ozone concentrations modeled in this and other modeling applications. Because model performance for this episode is fairly good with the Base 5 emissions inventory, the commission agrees that it should be part of the attainment demonstration. However, since there was no monitoring data to confirm the existence of this extreme modeled value, the commission contends that relatively less emphasis should be placed on this day than on days where the modeled peak is confirmed by monitored data. In other words, the commission questions the advisability of devising a control strategy based primarily on unconfirmed modeled results from a single episode day.

Second, EPA Guidance allows use of a statistical test to correct for extreme events. Since the monitored ozone peak on July 3 was not especially high, the statistical approach was not used in this case. But the modeled peak on July 3 clearly falls in the extreme category compared with monitored ozone levels over the last ten years, and also when compared to modeled peaks from this and other modeling applications. Thus, although the statistical test cannot be directly applied, the commission contends that the concept embodied in the statistical test clearly applies to the July 3 case. The conclusion is that using the modeled July 3 peak as the sole criterion for demonstrating attainment would likely lead to an excessive level of control for the DFW area.

EPA stated that the proposal in the *Texas Register* did not include complete documentation of the emissions modeled in the Regional Strategy. EPA further stated that not all of the necessary information was available on the TNRCC web site, particularly the inventory of Stage I sources, utility sources, non-electrical generating units and emissions reductions due to lower RVP fuel. EPA stated they had received the documentation, but had not had time to review the documentation. EPA then noted, that Appendix A had not been received.

Appendix A (Baylor Aircraft CD) was mailed to EPA Region VI by Technical Analysis Division on January 6. The point of contact for the appendix is Mr. Eric Gribben, TAD, (512) 239-2590. In addition, the following documents were provided to EPA Region VI by fax on February 10: 1) Memo on Regional modeling results for Texas Clean Gas dated 6/2/99 (to be submitted again as part of final SIP); 2) Memo on Regional modeling for point sources dated 9/1/99; 3) Memo on Regional modeling results for point sources dated 11/12/99; 4) Draft AWMA paper "Evaluation of Modeled impact of Texas clean gasoline." These documents are also included in the SIP as appendices.

EPA commented that the commission had not provided information showing the benefits of low RVP gasoline in the DFW, BPA or HGA areas.

The commission's contractor, the University of Texas, modeled 11 days - the two episodes submitted in the DFW SIP and the BPA and HG SIP episode. The impact of low RVP gasoline was evaluated and found to have an impact of 1 to 2 ppb on some of the 11 days modeled in each of the areas. On other days the impact is less than 1 ppb. An analysis of all days modeled has been added as an appendix.

Environmental Defense commented that the commission's modeling does not demonstrate attainment, since the recommended control strategy (D30) only reduces ozone levels to 134.5 ppb on the day with the highest modeled ozone levels (see table below) when the standard is 124.

The Clean Air Act defines nonattainment based on the number of expected exceedances at any monitor in a region. So long as monitored data shows that the number of expected exceedances is no greater than one, then the area is in attainment. The statistic which is used in the attainment test is based on this definition, and is defined as the highest design value at any monitor in the region, where each monitor's design value is the fourth-highest 1-hour ozone concentration measured at that monitor in the most current three-year period (adjusted for incomplete data, if applicable). Thus, the Act allows a region a limited number of exceedances of the standard without causing a violation. EPA guidance explicitly allows modeled values to exceed the standard in attainment demonstration modeling, provided the exceedance is very limited in time and space, and provided that the State can supply additional compelling evidence that the area will not be in violation in its attainment year. These ancillary arguments are collectively known as WOE.

EPA guidance provides for two approaches to demonstrating attainment, a statistical test and a deterministic test. The guidance allows WOE to be used in both approaches. The statistical test accounts for the case where exceptionally severe episodes are modeled, and allows states to adjust future modeled ozone concentrations based on how exceptional the modeled exceedance was. Since the monitored peak ozone on July 3, 1996 was not especially high, the commission did not pursue this approach. However, as discussed in section 6.3.2 of the draft SIP, the commission believes that

July 3, 1996 likely represents an extreme event (assuming the modeled peak is accurately predicted). In this case, it would be inappropriate to develop controls based on this unusual day.

The deterministic test which the commission used can be passed by showing modeled ozone concentrations everywhere to be less than 125 ppb for all hours modeled. As the commenter pointed out, Control Strategy D30 does not pass this stringent test, although it does show great improvements in air quality. Therefore, the commission used additional WOE analyses to demonstrate the strong probability that the area will reach attainment by 2007, even though the modeling indicates that there may be occasional exceedances of the standard.

Environmental Defense commented that EPA rejected the BPA area's attempt to show attainment using WOE because the modeled peak ozone concentration in the area was 136 ppb, and therefore should disallow DFW's WOE argument, since the modeled peak for Strategy D30 is 134.5 ppb.

It is important to understand the differences between the DFW and BPA nonattainment areas. In DFW, most NO_x emissions are caused by on road and nonroad mobile sources, while in BPA, the majority of NO_x emissions come from industrial sources. Furthermore, BPA is part of a large airshed which includes the HGA nonattainment area, while DFW is relatively isolated from other nonattainment areas. So it is appropriate for EPA to judge each area's case on its own merits.

In a letter to Jeff Saitas, commission's Executive Director received on June 29, 1999 from Robert Hanneschlager, Director Multimedia Planning and Permitting Division, EPA Region VI, EPA states that "The WOE approach is used in instances where the modeled control strategy of all practical control measures fails to reach modeled attainment." While the commission believes this statement represents a very limited view of the circumstances under which WOE can and should be applied, we agree that WOE becomes more compelling in cases where very stringent control measures are proposed. For the DFW area, significant additional control measures beyond Strategy D30 would likely be extremely onerous to the citizens and business community alike or will require further action at the federal level. Thus, the commission stands by its contention that WOE is appropriate for demonstrating attainment in DFW.

Environmental Defense commented that the inclusion of emissions reductions resulting from implementation of SB 766 in the DFW future base case is almost certain to overstate the real world reductions that are achieved by this program and should therefore be taken out of the model. The modeling unrealistically assumes that *every* grandfathered facility in East Texas will obtain a permit and reduce NO_x emissions by 30%. (The model also assumed a 13% reduction in emissions from facilities whose permitting status was unknown). The only plants for which the agency can quantify any future reductions are the 8 of 760 grandfathered non-utility plants which, in the eight months since the passage of SB 766, have received an agreed order or a permit or have filed permit application.

Because of the uncertainty in these emissions reductions, they should not be included in the future base case. If the commission elects to take credit as a SIP control measure for highly uncertain reductions to be made at grandfathered facilities, it must accompany them with equivalent contingency measures that would be implemented should actual reductions at grandfathered facilities fail to meet projections.

The commission has removed reductions from SB 766 in the attainment demonstration modeling. The 30% emission reduction run is submitted as part of the WOE analysis. The commission believes other facilities will make additional reductions prior to 2007.

Environmental Defense commented that the modeling assumes that every control measure will prove 100% effective when implemented, and that actual reductions will be lower than projected because of difficulty in enforcing measures like reduced speed limits and shifting construction hours.

The commission acknowledges the difficulty of enforcing control strategies, especially unpopular measures. However, this issue is really one of enforcement, not of modeling. The commission expects that the rules adopted in this SIP will be vigorously enforced, hence expects a high compliance rate. As part of its mid-course review planned for 2004, the commission plans to review the issue of compliance, and if appropriate adjust its modeling at that time.

Environmental Defense commented that the modeling does not appear to account for vehicle trips coming into the 4-county nonattainment area that originate in perimeter counties.

The commission does not concur with this statement. The 2007 mobile source emissions inventory for the DFW area currently being used is based on a similar 1995-96 inventory developed under contract to the commission by the NCTCOG. A complete description of the development of this 1995-96 inventory can be found in a document entitled *1995/96 & 1999 On-Road Mobile Source Episodic Emission Inventories for the Dallas-Fort Worth 37-County Modeling Domain*. Excerpts from this document may be obtained by contacting Chris Kite of the TNRC at (512) 239-1959 or ckite@tnrcc.state.tx.us. For a complete copy of the document, please contact Chris Klaus at (817) 695-9286 or cklaus@dfwinfo.com.

In developing the emissions estimates, the NCTCOG utilized its in-house travel demand model (DFWRTM) to develop roadway link-based emission estimates for the five “core” counties of Collin, Dallas, Denton, Rockwall, and Tarrant. The remaining 32 counties in the modeling domain which surround the core are referred to as the “perimeter” counties. On pages II-1.4 and II-1.5 of the aforementioned document, the NCTCOG states:

“Trip purposes in the DFWRTM are defined in one of four ways: home-based work (HBW), which includes trips from home to work or work to home; home-based nonwork (HNW), including all nonwork trips beginning or ending at home; nonhome-based (NHB), which includes all trips where home is neither the origin nor the destination end; and “Other” trips including external-internal, internal-external, and external-external trips as well as truck and taxi trips.”

For the purposes of this modeling, “external” refers to any area outside of the five core counties and “internal” refers to the area inside the five core counties. “External-internal” trips are those into the core counties from the perimeter counties and beyond. “Internal-external” trips are those from inside the core counties to the perimeter counties and beyond. “External-external” trips are those from the perimeter counties and beyond passing through the core counties to the perimeter counties and beyond. As can be seen above, the NCTCOG states that the trips from the perimeter counties and beyond are accounted for in their travel demand modeling.

Environmental Defense commented that the commission inappropriately underestimated the percentage of high-polluting pickup trucks and sport-utility vehicles (SUVs) contained in the DFW fleet. Such an underestimation would tend to lower the total mobile source emissions from the on-road fleet due to the fact that these larger vehicles emit more pollution on a per mile basis. Environmental Defense indicated that the Texas figures for percentages of SUVs and pickups in the fleet should be significantly higher than

EPA national default figures. In addition, Environmental Defense mentions that recent Texas vehicle registration data should have been used to achieve this purpose. In developing the estimates for mobile source emissions in 2007, Environmental Defense feels that the TNRCC only used recent vehicle registration to represent a “younger” and therefore cleaner fleet, instead of also using recent vehicle registration data to represent the SUV and pickup truck portions of the fleet.

The 2007 mobile source emissions inventory for the DFW area was developed under contract to the TNRCC by the NCTCOG. At the time it was produced, the most recently substantial available data inputs were used. A complete description of the development process can be found in Appendix F supplement entitled *2007 On-Road Mobile Source Episodic Emission Inventories for the Dallas-Fort Worth 37-County Modeling Domain, Volume II, June 18, 1999.*

The Commentor is incorrect in asserting that vehicle registration data were improperly used to satisfactorily account for the presence of SUVs and pickups in the Texas fleet. The use of vehicle registration data alone is insufficient to satisfactorily estimate on-road mobile source emissions. For example, assume for the sake of argument that light-duty gasoline vehicles (LDGVs) account for 60% of the registered fleet in a given area. Based just on registration data alone, it would be inappropriate to deduce that LDGVs also account for 60% of all traffic in that area. Instead, in accordance with proper travel demand modeling procedure, NCTCOG relied on region specific VMT mix information obtained from the TxDOT Vehicle Classification Report, which provides observed on-road traffic profiles obtained at various data collection stations throughout the State.

The VMT mix information which NCTCOG used in developing the 2007 mobile source inventory is provided in Exhibits VI-3.1 and VI-3.2 on pages VI-3.10 and VI-3.11, respectively, of Appendix Q. Naturally, the 2007 numbers are projected into the future based on the most recent substantial TxDOT data and the projections do take into account the expected growth of the SUV and pickup truck portions of the fleet. The tables in these exhibits are too lengthy to provide here, but they summarize the portion of VMT contributed by each of the following eight vehicle types:

<i>Classification Code</i>	<i>Description</i>
LDGV	Light-Duty Gasoline Vehicle
LDGT1	Light-Duty Gasoline Truck, Category 1
LDGT2	Light-Duty Gasoline Truck, Category 2
HDGV	Heavy-Duty Gasoline Vehicle
LDDV	Light-Duty Diesel Vehicle
LDDT	Light-Duty Diesel Truck
HDDV	Heavy-Duty Diesel Vehicle
MC	Motorcycle

Within each vehicle type, the VMT mix is further broken down by roadway type (freeway versus arterial) and by county type (core urban, core rural, and perimeter). For the most part, the SUVs and pickup trucks fall into the LDGT1 and LDGT2 categories. As is expected, there is a greater percentage of LDGT1 and LDGT2 VMT in the primarily rural perimeter counties compared to the core counties of Collin, Dallas, Denton, Rockwall, and Tarrant. It is important to note that all of the VMT mix data used were originally based on traffic actually observed in the DFW area. In

addition, different roadway types were also taken into account. For example, the portion of HDDVs observed on freeways is significantly higher than that observed on arterial roadways.

Environmental Defense commented that it was inappropriate for the commission to utilize the most recently available vehicle registration data when projecting the composition of the 2007 fleet. Environmental Defense feels that such an approach is inappropriate because it overestimates the amount of newer vehicles which the 2007 fleet will contain and, therefore, it tends to underestimate overall mobile source emissions. Environmental Defense feels that it would be more appropriate to use historical averages of fleet composition.

The commission does not concur with this statement. At the time the 2007 modeling projections were performed, the most recently available registration data were from 1998. Currently, there are no economic forecasts which indicate a significant economic downturn at either the national or local levels. Consequently, it is not inappropriate to assume that the current rate of new vehicle purchases will continue for the next several years. Both the commission and NCTCOG are in support of using the most recent substantial data available in modeling. In fact, use of the most recently available vehicle registration data is recommended by EPA in their MOBILE5 guidance documentation.

Environmental Defense asked if the 208 tons-per-day of mobile source 2007d base case NO_x includes an adjustment for non-recurring congestion, as is indicated in the SIP narrative.

The mobile source NO_x emissions for the 2007d base case modeling do account for non-recurring congestion on freeways. However, the 208 tons-per-day of NO_x figure for on-road mobile sources as reported in Table 6-1 is actually from the 2007c base case and does not reflect the adjustment for non-recurring congestion. The reason for the inconsistency is that some portions of the SIP document were drafted prior to November of 1999 when the 2007d base case was modeled. Unfortunately, the 2007c base case emissions for on-road mobile sources which were included in the original draft of Table 6-1 were not later updated. The commission regrets the oversight and has made the appropriate corrections to the table. In order to account for non-recurring congestion, the NCTCOG had recommended a freeway NO_x emissions increase of 4.9%. Instead of applying the 4.9% NO_x adjustment to the total on-road mobile source emissions, a 3% adjustment was applied to the total to account for the fact that the 4.9% figure should only be applied to the freeway portion of the mobile source emissions. Thus, the 208 tons-per-day figure was adjusted upwards by 3% and should read 214 tons-per-day in Table 6.1

Environmental Defense commented that the commission improperly accounted for the reductions of Ellis County cement plants.

The table in the rule proposal preamble represented an approximately 40% NO_x reduction from each Midlothian cement company's uncontrolled baseline (i.e., prior to any modifications to reduce NO_x emissions, such as mid-kiln firing of tires, etc.). Since the rule proposal was still being developed at the time, modelers were instructed to boost the emissions reductions to a total of 50%. Hence a factor was applied to the Midlothian area to arrive at an overall 50% reduction. Submitted modeling will include only the actual emissions reductions achieved which is 30%.

The DFW Attainment SIP modeling is based upon 1996 episodes, and therefore the EPA has confirmed that 1996 is the appropriate base year. Therefore, the estimated reductions and current

modeling are based on 1996 actual emissions as the baseline. In the case of EGFs, a three-year average (1996-1998) was selected as the baseline because fluctuations in ambient temperature patterns often cause significant annual variation in electric demand. An average over three years limits the influence of one particular year on the design value. It should be noted that the NTCASC recommendation, as adopted on October 29, 1999, was for "up to 50% Ellis County reduction from cement kilns." Therefore, the commission's rule for cement kilns in Ellis County is consistent with this recommendation.

Environmental Defense indicated that they had UT perform regional scale modeling with 75% reductions of NO_x and that this modeling showed larger reductions of ozone in the DFW area.

The regional modeling performed by UT for the commission analyzed reductions of 20%, 30%, 40% and 50% applied to all point sources east of I-35. It is not possible to evaluate the Environmental Defense/UT results without reviewing the whole modeling report. The work that Environmental Defense had performed appears to have excluded the point sources in part of the DFW nonattainment area, but the exact geographical extent is not clear from the information in the letter. They modeled only the 1993 episode which was the episode for urban scale modeling in the HG area. The 1995 and 1996 episodes which were developed for the DFW SIP development were not modeled by Environmental Defense. The maximum difference for their modeling was on Sep 11, 1993 with 6 ppb for a 50% reduction and 8 ppb for a 75% reduction. The maximum modeled 1-hour ozone concentration on Sep 11, 1993 was 116 ppb, significantly below the 1-hour air quality standard of 125 ppb. The information from the Environmental Defense modeling can be added to the information already presented for the other reduction scenarios and considered in making the policy decision for the amount of control that should be applied to each source category.

Environmental Defense suggested that the commission include the results of the trajectory analysis that was performed and presented at a previous meeting.

Trajectory analyses provide insight into the path an air parcel took prior to arriving at a monitor. However, these analyses do not include information on quantity of source emissions, atmospheric chemical reactions and ozone formation, or response of ozone to various control strategy options. They have been considered for episode selection and development of a conceptual model for high ozone, but should not otherwise be considered in the core information in the SIP as they do not directly address evaluation of control strategy options.

Several individuals commented that the air modeling for reaching attainment needs to be based upon the maximum measured ozone rather than more typical events. The individuals also suggested that air modeling should be based upon enough ozone exceedance days during the ozone season to accurately represent the prevailing winds which transport air pollution from regional sources in the east and south, specifically Ellis County.

This comment indicates a misunderstanding of the EPA requirements by assuming that modeling an extreme event is the best way to address the ozone problem. Ozone simulations are quite time consuming and resource intensive, so it is not practical to model extreme events that are unlikely to recur. Simulating extreme events is also likely to lead to extreme and unnecessary levels of control. It is more appropriate to model typical ozone events that constitute the majority of the exceedances and bring those events under control.

The Clean Air Act acknowledges the discrepancy between typical and extreme ozone concentrations by defining a “design value” to determine attainment or nonattainment. The “design value” is based upon the 4th highest 1-hour measured ozone that occurs in a three year period rather than the highest ozone measured in any single year. Further, the Clean Air Act indicates that it is the design value that must be brought into compliance with the standard.

The two ozone episodes that were modeled for this SIP (June 1995 and July 1996) were typical based upon both design value and wind direction.

- The three 1-hour exceedances during these two episodes were 144, 135, and 144 which are representative of the design values for those years which were 140 and 139.
- The wind flow during the 1995 and 1996 episodes was from the South and Southeast which matches the prevailing wind patterns that occur during the majority of the ozone episodes (56%). These two episodes do include the impact of Ellis County sources upon the DFW area.

Finally, the comment refers to the 164 ppb concentration measured on August 4th, 1999 at the Fort Worth NW monitoring site which represents the highest ozone recorded in the DFW area that year. Even if it were appropriate to model this extreme event, starting new work on a 1999 episode at this time would not allow meeting the EPA timeline for submitting the SIP.

One individual suggested alternative measures for ozone and whether further reductions in ground level ozone are necessary.

Although there may be other ways to measure ozone, the current EPA ozone standard and the new 8-hour standard are based on a large body of health studies and have been written into the federal law.

One individual suggest that the levels of ozone in both Houston and Los Angeles have been affected by global weather phenomena.

The commission concurs. Global scale weather phenomena are associated with wavelike patterns, and that Los Angeles is approximately ½ wavelength from Texas. Thus when Los Angeles has a good year (for rain or for ozone), it is quite likely that Texas will experience the opposite phenomena.

One individual suggested that the key to controlling ozone is lowering NO_x rather than VOC, that automobile emissions are a significant part of the ozone problem, and that further attempts to lower industrial NO_x will be futile.

The commission concurs that in general, NO_x controls are more effective than VOC controls, but that a dual approach provides even more benefits. Further, Texas has opted into the new Tier II and National Low Emission Vehicle standards because of the emissions reductions these programs will provide. However, the commission does not agree that further attempts to lower industrial NO_x will be futile. Although the citizen is correct that the high temperature emissions from tall stacks are dispersed into the atmosphere, utility and industrial emissions add to total burden of NO_x and ozone in Texas. The higher background concentrations are transported into the cities and makes it more difficult for them to meet the federal ozone standard.

One individual commented that the commission's efforts to use the HGA area transport emissions as justification for the DFW poor air quality is simply disgraceful. The WOE argument again relies on smoke and mirrors; statistics and modeling approaches that can be manipulated anyway a politician would like them to bend.

The transport analysis does not attribute the DFW ozone problem to the sources in Houston. It simply points out that Houston contributes to the background concentrations of ozone that are transported into the DFW, which makes it more difficult for DFW to attain the standard.

One individual submitted the following nine written comments on modeling issues:

“TNRCC never says what the actual significance of transport from the HGA [Houston-Galveston area] is.” “Why should [other nonattainment areas] attainment hinge on the HGA when a relatively small portion of the ozone transport is caused by HGA?”

While the effect of HGA on DFW's attainment is currently small, after proposed emission reductions are in place in DFW, the area will be much closer to attainment. In this case, elevated background ozone concentrations due to transport from Houston will become more significant, and may represent the difference between attainment and nonattainment. EPA has accepted this argument as valid. It should also be noted that many proposed strategies have small effects on ozone, but when they are added together with other strategies, they should improve the air quality substantially.

“It is ridiculous to believe that the model underpredicts the amount of control by 34% when it does not underpredict ozone concentrations by this much.”

The individual is assuming that the model responds linearly to changes in input. For example, if the model responded linearly to NO_x emissions, the ozone concentration would change by 20% when the NO_x emissions changed by 20%. However, the model is not linear; it contains many feedback mechanisms, interacting variables, and nonlinear equations, and its sensitivity to emission changes varies geographically. Hence a given change in NO_x emissions usually does not result in an equivalent corresponding change in ozone in most areas. In general, the model tends to be less responsive to emission changes—i.e., to get a 20% reduction in ozone often requires emission cuts of more than 20%. Therefore, it is reasonable to expect that a relatively small overprediction in ozone may result in a disproportionate overestimation of needed emission reductions.

“It is obvious that TNRCC is getting worse results as its modeling proficiency increases. This is the exact opposite of what the public should expect from its experts.”

First, the model performance stays within EPA's acceptable range for the modeling of primary episode days. Small variations in model performance should therefore not cause great alarm. Second, the models used in the SIP are very complex, are often at the very cutting edge of the sciences of atmospheric chemistry, boundary layer meteorology, and emissions estimation, and are continually being refined and improved. The result is that not all of the uncertainties in the model are addressed all at once. Hence, compensating errors can become uncompensated by repairing one part of the model while leaving the remainder as is. It is nevertheless important to continually improve the modeling whenever and wherever possible, because that is the only way all of the uncertainties can be resolved.

The individual objects to changing photochemical models.

The commission's Modeling Team strives to use the most scientifically advanced tools available in performing photochemical modeling in Texas. It will continue to evaluate and choose new models whenever they become available, so that the accuracy of its modeling predictions will continually be the best that can be obtained with the current tools.

The individual questioned why the commission is not using the Water Development Board population projections.

The commission states the source of its population data, and unless convincing contradictory evidence is presented, maintains that these data are most appropriate for population projections. Also, the commission receives assistance from the COGs and TTI to develop large portions of the inventory. It is important to be consistent with their data for transportation and general conformity issues.

The individual objected to using a bias adjustment to determine the controls needed to reach ozone attainment. The author noted that the commission does not seem to have an attainment maintenance plan for the DFW area after ozone attainment has been achieved. The individual further commented that the commission has not developed emission reduction strategies to reach attainment of the new 8-hour ozone standard.

The bias adjustment was not used to develop the final control strategies; rather it was a technique used to develop a preliminary emission reduction target, so that the development of specific control strategies could proceed before all of the detailed modeling was completed. Attainment maintenance plans are outside the scope of this document; such plans will be addressed in subsequent submittals to EPA as attainment is approached. The new ozone standard is still under review by the courts. Current federal law requires TNRCC to prepare its plans in accordance with the 1-hour ozone standard that is still in effect for the DFW area.

The individual asserted that the emission reduction factors for lowering speed limits are too large. Though no evidence is presented, the author reminded the commission that enforcement of speed limits is essential to obtaining the desired emission reductions.

Unless convincing contradictory evidence can be presented, the commission maintains that its analysis of speed limit reduction benefits is valid. The speed limit assumptions include compliance with a speed that is 10% higher than the posted speed in order to make a realistic estimate of reductions.

The individual strongly disagreed with the assertion on page 3-24 that the proposed reductions may result in air quality better than required under the FCAA.

EPA accepts WOE arguments as a valid approach, including future design value analyses. The method used here is technically sound.

The individual objected to extending DFW's attainment date to 2007 based upon Houston's small impact on the ozone concentrations in DFW, as simulated in the synthetic wind episode.

EPA has tentatively accepted the transport argument as valid. However a final determination would be made when the state submits an approvable attainment demonstration SIP showing that the DFW area will attain the ozone standard as expeditiously as practical and have adopted measures or proof that all applicable control measures required under the serious classification have been adopted.

Two individuals commented that biogenic emissions should fall in DFW as development continues and that this is not accurately reflected in modeling.

Biogenic emissions were assumed to be constant, because projected variations in these emissions due to development are virtually impossible to quantify. It is a more conservative approach to hold the biogenic VOC emissions constant, and to rely upon anthropogenic VOC reductions to reach the standard, than to assume that biogenics will decrease.

The Dallas City Council suggested that ozone control strategies should be based upon studies of typical ozone exceedance days.

Staff selected the June 1995 and July 1996 episodes from a pool of recent ozone episodes based upon an analysis of the wind speed and direction data for all the ozone exceedances that occurred between 1988 and 1997. The 1995 and 1996 episodes were selected because they had characteristic wind patterns, measured ozone concentrations near the design value, represented the current emissions situation and control technology and because these two episodes were supported by excellent meteorological, emissions and precursor data sets.

Given the limited time available to prepare the Phase I and Phase II SIPs, it was unrealistic to attempt modeling an additional episode. However, the commission will work closely with regional stakeholders to develop an additional episode as part of the proposed mid course review.

DFW International Airport asked for clarification whether the emissions inventory used in Base 5 or Base 4d will serve as the basis for the SIP.

The Base 6 inventory is used for the attainment demonstration.

TI commented that it did not believe it is necessary to include the level of details in Appendix F and requested a more generic approach that does not identify the specific emission sources used in the modeling. TI asked that the commission clarify that it is relying on the companion rule changes proposed in conjunction with the SIP, and not the modeled reductions contained in Table F4.1 to Appendix F in demonstrating attainment or reasonable further progress.

The commission identified each point source and specified the estimated emission reductions from those sources in the modeling appendices of the SIP in order to allow affected persons, the public, and EPA to conduct a more meaningful review of the estimates and assumptions made by commission staff. As a result of the comment received from TI, the commission has revised the modeled reductions. The intent was to credit to the SIP the reductions that were known to have occurred at two DFW non-utility major sources which recently replaced their grandfathered boilers with new boilers permitted under BACT. However, although the reductions from the boiler replacements are permanent and enforceable, most of these reductions have been used by the companies to offset NO_x emission growth from other new facilities at these sources. The companies

have chosen to reserve the remaining small surpluses at these sources to offset future growth. Therefore, the reductions in question have been removed from Chapter 3 and Appendix F of the DFW SIP, and subsequent modeling.

TCM Comments

EPA commented that there is certain criteria TCMs must meet before an agency can consider them approvable. There must be a thorough description of the TCM, estimated emission reduction benefits, evidence that they were properly adopted, evidence of funding, appropriate approval and evidence of a specific schedule to plan, implement and enforce the measures and a description of the monitoring program. The EPA indicated that the following details are missing from Appendix G: in several places the project name and/or description is listed as “various locations” for intersection improvements. These must be specified in greater detail in the SIP. “Various locations and “citywide” was also used for corridor improvements, which is not specific enough. Numerous projects do not have a date listed in the implementation year; more detail is needed to take SIP credit. The rail project listed does not have enough details (no thorough description or specific schedule). EPA asked the commission to refer to their comments on the required elements necessary for TCMs to be approved by EPA as part of the DFW attainment demonstration SIP. EPA also indicated that the commission must also submit the emission reduction calculation methodologies for the TCMs to be approvable.

The commission notes that Appendix G has been revised to reflect updated information from the NCTCOG. TCM project names and/or descriptions have been updated to include project specific locations and implementation dates have been listed for all TCMs. The rail project has been described in greater detail. Appendix G includes thorough descriptions and estimated emission reduction benefits for all listed TCMs. The commission has revised the SIP narrative to indicate that the inclusion of the TCMs in the DFW long range transportation plan and/or transportation improvement (TIP) constitutes evidence that the TCMs were properly adopted and have funding and appropriate approval. The commission has also revised the SIP narrative to indicate that inclusion in the transportation plan and/or TIP also constitutes evidence of a specific schedule to plan, implement and enforce the measures. The NCTCOG is required to submit an annual TCM status report to the commission pursuant to 30 TAC §114.260 and §114.270. The status report and supporting activities constitute the monitoring program. The commission has revised the SIP narrative to include a description of the monitoring program. Appendix G has also been revised to include the emission reduction calculation methodologies.

The City of Dallas, the Sierra Club Lone Star Chapter and nine individuals supported the TCMs as proposed. The Sierra Club Lone Star Chapter also supported statewide adoption of TCMs. Two of the individuals also suggested the following TCMs: better coordinated traffic lights, bike paths, increased mass transit and light rail. One individual also noted that the TCMs alone would not be enough achieve attainment.

The commission appreciates the support of the City of Dallas, the Sierra Club Lone Star Chapter and the nine individuals for the proposed TCMs. The commission notes that TCM-type transportation projects can be, and are being, implemented statewide. Transportation projects that are eligible to be TCMs generally have both transportation and air quality benefits and are often implemented to improve the transportation system. Projects such as better coordinated traffic lights, bike paths, mass transit and light rail are being implemented in the DFW area; they may or may not have been included in the SIP as TCMs. An area’s transportation plans and projects are developed by MPOs and/or state and local transportation agencies. The MPO for the DFW area is

the NCTCOG. The commission will provide the NCTCOG all comments received pertaining to TCMs and refers commenters to the NCTCOG for further details on TCM-type projects being implemented in the DFW area. The commission agrees that TCMs alone are not sufficient to achieve attainment.

One hundred and eighty nine individuals recommended using highway monies to support high speed rail and other mass transit options. The commenters also stated that many TCMs (highway improvements to alleviate congestion, HOV lanes, vanpooling, park and ride, bus and rail fare reductions, bicycle and pedestrian paths) have been tried and failed and that effectiveness is very hard to quantify or verify.

The commission does not have the authority to allocate highway funds. The commission notes that the NCTCOG, the Texas Department of Transportation and the U.S. Department of Transportation coordinate transportation project funding for the DFW area; the commission will refer all TCM comments to these agencies for their consideration. The commission agrees that many TCMs, such as highway improvements to alleviate congestion, HOV lanes, vanpooling, park and ride, bus and rail fare reductions and bicycle and pedestrian paths have been tried; however, the commission does not agree that these types of projects have failed. While these types of projects may not achieve significant emissions reductions individually, when considered in total, they can produce significant reductions. The commission does not agree that TCM effectiveness is hard to quantify or verify; accepted procedures to do so are common practice.

The Texas Public Policy Foundation commented that behavioral transportation control measures have serious limitations because these programs are largely ineffective and poorly targeted. The Foundation noted that the biggest problem with vanpool, rideshare and park-and-ride transit programs is that few people find them a suitable alternative to individual mobility. The Foundation also indicated that most TCMs focus on commuter trips and therefore can only affect a relatively small percentage of overall transportation-related emissions. The Foundation also suggested direct emission pricing for automobiles and a decentralized, on-demand network of private shuttle vans as alternative measures. Direct emission pricing would involve basing annual vehicle registration fees on a combination of distance driven and the emissions characteristics of the vehicle. The Foundation recommended that the network of shuttle vans operate on a highway system with HOV or high occupancy toll (HOT) lanes to increase average vehicle occupancy.

The commission does not agree that “behavioral” TCMs are largely ineffective. Although TCM projects such as vanpool, rideshare and park-and-ride transit programs may not achieve significant emissions reductions individually, when considered in total, these types of TCMs can produce significant reductions. Every project that reduces emissions is effective in terms of contributing to overall emissions reductions. The commission also does not agree that “behavioral” TCMs are poorly targeted. The commission does agree that many of these TCMs are targeted toward commuter work trips, which typically generate less than half of the total VMT in an area; however, an area’s work trips generate substantial emissions because most drivers are making the work trip during the same time period and many are traveling to/from the same approximate locations. Work trips are largely responsible for the a.m. and p.m. peak travel periods, during which roadways frequently become congested with idling or slow moving (less than 30 mph) vehicles. The large number of idling or slow moving vehicles produce a significant amount of emissions. Emissions produced during the a.m. peak travel period are particularly problematic; these emissions are more likely to contribute to excessive ozone levels than those that occur in the late afternoon. Any measures that will reduce peak travel period emissions will help lower an area’s

ozone levels. The commission therefore believes that it is necessary and beneficial to target reductions in work trips. The commission appreciates the suggestions for direct emission pricing for automobiles and a decentralized network of private shuttle vans, but notes that the measures are beyond the scope of the current proposal. The commission will evaluate the measures for possible inclusion in future air quality initiatives.

The League of Women Voters of Texas, Citizens for a Safe Environment, and 24 individuals commented that more money and efforts should be spent addressing mass transit. Suggested ideas for funding included: using highway funds, lottery money, state and city money, and raising gas taxes.

The commission agrees that mass transit can be an effective mechanism for reducing on-road mobile source emissions under proper conditions; however, the commission does not have the authority to select, fund or implement transportation projects. The NCTCOG is responsible for coordinating transportation projects and developing the long range transportation plan in the DFW area; the commission will refer all suggestions received accordingly. The commission can credit the area for emissions reductions associated with transportation projects, if the projects are included as TCMs in the SIP. The commission does not have the authority to initiate changes in tax revenues and expenditures; these types of initiatives are the responsibility of the taxing entity and may require legislative action.

Eight individuals, the Sierra Club Lone Star Chapter, Environmental Defense, and the 44 members of the Texas Air Crisis Campaign commented that corporations should provide incentives for employees to use telecommuting, flex time, mass transit, and carpooling.

The commission agrees that corporate incentives for employees to use telecommuting, flex time, mass transit and carpooling could be beneficial in reducing work related VMT and associated emissions. Many corporations are providing incentives on a voluntary basis and a local initiative could increase the number of participating companies. Mandatory corporate incentives are beyond the scope of the current proposal; however, the commission will evaluate the suggestion for consideration in future SIP activities.

Nine individuals, Environmental Defense, and the 44 members of the Texas Air Crisis Campaign commented that there should be more focus on pedestrian walks, bike lanes and trails.

The commission notes that several bicycle and pedestrian trail projects are included as TCMs in Appendix G of the proposed SIP. The NCTCOG is responsible for the coordination of bicycle and pedestrian facilities in the DFW area; the commission will forward these comments to NCTCOG accordingly.

Environmental Defense and the 44 members of the Texas Air Crisis Campaign commented that traffic and sprawl management strategies such as travel demand management and transit service development should be considered. In particular, the commenters supported: 1) the creation of Transportation Management Districts as public-private partnerships to coordinate trip reduction programs and alternative travel mode development and financing and 2) real time traffic and transit passenger information and paratransit dispatching systems and extensive transit priority treatment.

The commission agrees that effective traffic and sprawl management strategies could reduce on-road mobile source emissions. The commission notes that the creation of Transportation

Management Districts is beyond the scope of this proposal, but will evaluate the suggestion for potential use in future air quality initiatives. The commission notes that the DFW intelligent transportation system (ITS) could provide real time traffic and transit passenger information and believes that the DFW area plans to provide that information in the future. The commissions refers commenters to NCTCOG for further information on ITS plans and activities. The commission also refers commenters to NCTCOG for further information on paratransit dispatching systems and transit priority treatment. The commission also notes that NCTCOG has included information on sprawl management strategies such as sustainable development in the DFW long range transportation plan and in the VMEP measure listed in the SIP.

The League of Women Voters of Texas and 19 individuals suggested computerized or synchronized traffic signals and general signal timing improvement to keep traffic flowing and reduce idling. Eight individuals indicated that Fort Worth needs a signal timing system like Arlington. One individual suggested changing left-turn signals to allow for “yield on green” except where safety concerns preclude to reduce idling and suggested adding right turn arrows on major arteries which have protected left turn signals on cross-traffic routes to reduce stopping.

The commission appreciates the suggestions and agrees that traffic signal improvements can significantly reduce vehicular emissions. NCTCOG has committed \$6.2 million dollars to a regional traffic signal integration and monitoring project, which will evaluate and improve approximately 3,500 signals in the DFW area. The traffic signal integration and monitoring project has been included in the SIP as a contingency for the VMEP program. The commission suggests that commenters contact the NCTCOG for further information on the traffic signal improvement program and specific traffic signal needs.

The League of Women Voters of Texas and one individual supported more HOV lanes, while three individuals commented that HOV lanes should be discontinued since it has been proven that they don’t work. Two of the individuals referred to a New Jersey Department of Transportation report on HOV lanes. One of the individuals suggested that moving total traffic better is the way to reduce pollution.

The commission notes that HOV lanes reduce vehicular emissions under most circumstances. The current HOV lanes in the DFW area do reduce vehicular emissions; however, there may be specific instances in other locations where HOV lanes have not been effective. The TCMs listed in Appendix G include 31.2 miles of HOV lanes that will be implemented in the 2002 - 2005 time frame. The commission agrees that improvements in total traffic movements are effective measures to reduce pollution.

The Texas Public Policy Foundation and seven individuals suggested roadway transportation system improvements. The Foundation indicated that environmental benefits can be achieved from strategies that increase or maintain vehicle operating speeds while reducing acceleration and deceleration. The Foundation further stated that new roadway capacity serves this objective and should therefore be a priority. Two individuals suggested limited access express lanes between Fort Worth and Dallas. These lanes could be constructed permanently or constructed of moveable dividers and reversible lanes. One individual suggested express lanes for trucks and buses instead of HOV lanes and noted that cars are quicker and more agile than trucks and buses. One individual suggested that all modes of international, intrastate and interstate traffic be routed around or “fly over” the DFW area and included a detailed plan for doing so. One individual commented that existing rural highways should be reconfigured into toll roads to discourage recreational traffic. One individual commented that gasoline taxes should be raised to

fund additional freeway and intersection improvements. One individual suggested U-turns at intersections to improve traffic flow and moving accidents off the road more quickly to reduce traffic jams. The individual also noted that these and similar measures could be funded with license fees, inspection fees and the RTCA tax.

The commission appreciates the suggestions and notes that improvements to roadway transportation systems can reduce vehicular emissions by reducing congestion, reducing VMT or improving traffic flow. Under proper conditions, new roadway capacity, express lanes, truck and bus lanes and U-turns can reduce congestion and improve traffic flow. VMT could possibly be reduced by routing through traffic around the area. The conversion of rural highways to tollways might discourage recreational traffic; however, many vehicles use these rural highways for other purposes (residential, commercial etc.) and tollway conversion to discourage recreational driving may unjustly penalize these users. The NCTCOG is responsible for coordinating transportation projects and developing the long range transportation plan in the DFW area; the commission will refer all suggestions received accordingly. The commission does not have the authority to select, fund or implement transportation projects, but can credit the area for emissions reductions associated with transportation projects, if the projects are included as TCMs in the SIP. The commission does not have the authority to initiate changes in tax revenues and expenditures; these types of initiatives are the responsibility of the taxing entity and may require legislative action.

Two individuals suggested transit system improvements. One of the individuals suggested that sidewalks be installed at DART stops and on roadways used to walk to DART stops. The individual also suggested installing bus stop shelters and lower speed limits on streets with transit useage to improve rider's conditions. The other individual commented that the DFW area should expedite the construction of the current DART system and that all high traffic points such as downtown, airports, and all sports arenas should be connected

The commission appreciates the suggestions and agrees that transit system improvements would serve to maintain and increase ridership. However, the commission does not have the authority to select, fund or implement transportation projects. The NCTCOG is responsible for coordinating transportation projects and developing the long range transportation plan in the DFW area; the commission will refer all suggestions received accordingly. The commission can credit the area for emissions reductions associated with transportation projects, if the projects are included as TCMs in the SIP.

Two individuals suggested improved highway monitoring. One of these individual suggested sophisticated, computerized systems that will work with the sensors placed on the sides of roadways, similar to a skycam so that traffic flow can be observed, cars counted and traffic lights adjusted to improve stop and go traffic.

The commission appreciates the suggestions and notes that the capability for the type of computerized monitoring suggested currently exists. Intelligent transportation systems (ITS) are currently operational in the DFW area and are expected to be expanded in the future. The DFW ITS is included in the SIP as a contingency measure for the VMEP program. The commission refers the commenters to the NCTCOG for further information.

Two individuals suggested that road construction on high traffic roadways be conducted during off-peak traffic hours. One of the individuals suggested that construction times be posted and/or broadcast in advance so that alternate routes are used and emissions reduced.

The commission appreciates the suggestions and agrees that the suggested measures are effective ways to reduce vehicular emissions associated with road construction. The commission notes that road construction on high volume roadways is often conducted during off-peak hours and construction times are often posted in advance; however, increased use of these measures would provide additional reductions in road construction related emissions. The commission will forward these comments to the NCTCOG.

One individual suggested varied beginning and ending work schedules using 20 minute increments for the morning and evening rush hours. The individual commented that this action should be directed at employers located at highly populated business parks, industrial parks and downtown Dallas and Fort Worth. Each area should be divided into sectors and each sector divided into three travel times to begin and end the work day. The individual noted that this action could be voluntary or mandatory and should reduce the concentration of vehicle emissions at any one time.

The commission appreciates the suggestion and agrees that, in general, flexible work hours can contribute to reductions in peak traffic period emissions. A comprehensive scheduling of work and travel times is beyond the scope of the current proposal and would likely require a local initiative. The commission will forward this suggestion to the NCTCOG for their consideration.

One individual indicated that the road from Denton to Dallas is always clogged with traffic, while another noted that there was a rail line from Denton to Dallas that has since been converted to a bike path and suggested converting it back to a rail line.

The commission appreciates the comments and notes that the NCTCOG is responsible for the coordination of specific transportation projects in the DFW area; the commission will forward these comments accordingly. While the commission does not have the authority to select, fund or implement specific projects, it can credit the area for emissions reductions associated with specific projects included as TCMs in the SIP. The proposed SIP includes future bike paths and rail projects, as listed in Appendix G.

Three individuals expressed reservations regarding the TCMs. One of the individuals commented that you have to give people viable transportation options to get them out of their cars and reduce vehicular emissions. One individual stated that ridesharing, carpooling and mass transit were not workable and noted that there was no possibility of using mass transit in the DFW mid cities area. The last individual commented that the proposal assumes significant improvement from operation limits on ridesharing and carpooling, which are unlikely to offer any measurable reductions.

The commission agrees that viable transportation options are essential to the reduction of VMT and associated emissions and notes that the NCTCOG is responsible for developing the DFW long range transportation plan. The commission notes that effective ridesharing, carpooling and mass transit programs can reduce vehicular emissions and refers the commenters to the NCTCOG for information on specific programs in the DFW area.

Speed Limit Reduction Comments

EPA commented that the commission does not have the authority to revise speed limits and noted that the Texas Transportation Code requires all speed limit changes to follow procedures established by TxDOT. The EPA stated that they understand TxDOT is preparing a rule to reduce speed limits in the DFW area and indicated that, if so, a letter from TxDOT making a statement that a rule is being prepared, including a discussion of the legal basis for the rule change will satisfy completeness issues. If not, the EPA indicated that the submittal must contain a commitment by the appropriate state agency to carry out the speed limit reduction measure consistent with state law.

The commission agrees that it does not have the authority to revise speed limits and notes that TxDOT has proposed revisions to the Texas Transportation Code on February 24, 2000 which would establish procedures allowing speed limits to be changed for emissions reductions purposes. The proposed revisions were filed with the Secretary of State on February 28, 2000 and published in the Texas Register on March 10, 2000. The comment period closed on April 10, 2000. The revisions are scheduled to be adopted on either April 27, 2000 or May 25, 2000. A copy of the proposed revisions will be sent to EPA for informational purposes.

Denton City Councilman Mark Burroughs commented that he had proposed speed limit reductions to 50 or 55 mph to the AIR Steering Committee, but it was not approved. He indicated that his proposal was affected by the statement that the EPA will only accept proposals that can be implemented without legislative changes and indicated that there were other constraints as well.

The commission appreciates Councilman Burroughs support for the reduce speed limit concept. The commission notes that the speed limit reduction measure can be implemented without legislative changes (see above comment) and believes that any other constraints have been overcome as well.

The City of Dallas and 12 individuals expressed support for the proposed speed limit reduction measure. These individuals commented that lower speed limits would decrease pollution and increase safety. Of these individuals, four recommended lowering the speed limit to 55 mph, four supported the proposed 5 mph reductions and four supported generally lower speeds.

The commission appreciates the support of the City of Dallas and these individuals for the speed limit reduction measure. The commission notes that the specific 5 mph reductions were recommended by regional consensus and a technical analysis indicated that the reduced speeds would achieve sufficient emissions reductions for SIP purposes.

The American Lung Association, Environmental Defense and 44 members of the Texas Air Crisis Campaign, Sierra Club Lone Star Chapter, Texas Public Policy Foundation, Mayor Shirley Spellerberg, and 740 individuals expressed concerns about compliance to, and enforcement of, the speed limit reduction measure. In general, commenters indicated that the measure may be difficult to enforce adequately because traffic volumes are high and many drivers are not likely to comply. Of the individuals who commented, 509 stated that the commission should not rely on faulty assumptions about behaviors since few people are likely to reduce speeds. Four of the 551 individuals expressed the need for stronger enforcement presence. The Texas Public Policy Foundation and two of the 551 individuals indicated the need for increased law enforcement funding. One individual referenced studies that show that few, if any, drivers will slow down when the speed limit is reduced below the 85th percentile. Four individuals also commented on the inadequate enforcement of the existing speed limits. The Texas Public Policy Foundation and one individual stated that the public may prefer law enforcement resources to be

spent on serious crime, not speed limit enforcement. One individual suggested that an effort should be made to educate the public so that they would obey the law.

The commission agrees that both the current and reduced speed limits should be adequately enforced. The commission notes that there is an existing network of state and local law enforcement agencies responsible for enforcing speed limits; however, a stronger enforcement presence and increased law enforcement funding would facilitate adequate enforcement. The commission is committed to working with appropriate state and local agencies to ensure adequate enforcement of the measure. The commission realizes that some drivers do not comply with speed limits; the emissions reductions associated with the reduced speeds have been developed accordingly. The commission also notes that the American public has demonstrated a willingness to adjust their lifestyles for environmental reasons (recycling for example) and believes that many people will be willing to reduce speeds by 5 mph in order to improve air quality. The commission agrees that a public education effort would encourage drivers to comply with the measure.

Environmental Defense and the 44 members of the Texas Air Crisis Campaign commented that the speed limit reduction measure will create hostility toward clean air plans and two individuals commented that the reduced speed limits will make people angry or irritable.

The commission does not believe that the speed limit reduction measure will make most people angry, irritable or create hostility toward clean air plans. As noted above, the American public has demonstrated a willingness to adjust their lifestyles for environmental reasons. The commission believes that most drivers would be willing to adjust their lifestyle and reduce their speeds by 5 mph in order to improve air quality.

The Texas Public Policy Foundation commented that mandatory behavioral controls such as mandatory reductions in the speed limit should be avoided, since these types of controls have a history of failure and resource wastefulness. The Foundation also noted that the speed limit reduction measure is based on a limited understanding of the emissions to be reduced and probability of successful reduction.

The commission does not agree that the speed limit reduction measure is the type of control that has a history of failure and resource wastefulness. Reduced speeds will conserve, not waste resources; associated fuel savings are projected to be 92,000 gallons a day in 2007. The commission notes that the national reduced speed limits of 55 mph were imposed during the energy crisis to conserve fuel; the 55 mph speed limits were discontinued largely because the fuel crisis was over, not because the limits were a failure. The commission also notes that a 5 mph speed limit reduction (70 to 65, 65 to 60 mph) in 9 Texas counties is significantly different from a national 55 mph speed limit; direct comparisons may not be appropriate. The commission notes that the measure was evaluated using state of the practice and/or EPA approved models and methodologies. The resulting analysis indicates that the speed limit reduction measure will achieve significant reductions. The commission also notes that the analysis did not assume 100% compliance, but rather assumed that people would drive at speeds 10% higher than posted speeds; this indicates a reasonable probability of successful reduction.

The Sierra Club Lone Star Chapter and 193 individuals expressed concerns regarding quantification of the speed limit reduction measure. The Sierra Club stated that the measure has problems with the reductions estimates; if drivers fail to comply the reductions will not be achieved. The Sierra Club also asked how well the commission can predict on any given day how well several million drivers are

complying with the measure. Of the individuals commenting, 189 expressed quantification and overestimation concerns. One individual stated that the measure should not be credited by EPA unless actual emission reductions can be measured. One individual commented that the data used to justify the measure is technically flawed and misleading. The individual stated that emissions do go up as engine speeds go up, but noted that there are many other variables. The most obvious variable is the difference in city cycle and highway cycle fuel efficiencies, which will significantly impact the total amount of pollutants generated. One individual commented that he would like the commission to have tests run on speed limits and asked if there was any scientific evidence to support reduced speed limits.

The commission notes that the measure has been quantified using state of the practice traffic models and the EPA required MOBILE emissions model. Traffic was simulated for an average weekday (which was divided into 5 time periods) and the associated emissions calculated. Two underlying assumptions support the modeled results and indicate that the measure is more likely to be underestimated than overestimated. These assumptions are: 1) no emissions reductions from vehicles on roadways where the models indicate traffic is moving slower than the reduced speed limit and 2) the modeling assumes that vehicles will travel at speeds ten percent higher than the reduced speed limits. The emissions reductions identified in the SIP were calculated only for the modeled area; however, the measure will be applied to an area larger than that which was modeled, so additional reductions will be achieved. These additional reductions have not been used for SIP credit, which further indicates that the measure's emissions reductions, as quantified in the SIP, have been underestimated. The commission also notes that it is not physically possible to test or measure the impact of reduced speed limits on actual region wide mobile source emissions, since it is not possible to control all variables and manipulate only the speed variable. The commission notes that on-road mobile source emissions estimation using traffic models and the MOBILE emissions model is accepted practice and is currently considered to be the most accurate method of estimating on-road mobile source emissions. The commission agrees that there are many variables that determine actual speed related emissions, but notes that the EPA requires the use of the MOBILE emissions model when calculating emissions for regulatory purposes. The commission has revised the SIP to include an expanded explanation of the quantification methodology and supporting data.

Environmental Defense and the 44 members of the Texas Air Crisis Campaign also stated that the speed limits should be lowered if there is evidence that such actions will reduce accidents and deaths, not as a pollution control strategy.

The commission agrees that speed limits should be lowered if there is evidence that such actions will reduce accidents and deaths, but believes that the public health risk associated with poor air quality also justifies lower speed limits.

The Sierra Club Lone Star Chapter also stated that the measure is too difficult to implement or track progress of.

The commission does not agree that it will be difficult to implement or track progress of the measure. The measure can be implemented by changing the speed limit signs and ensuring adequate enforcement. Reports from law enforcement agencies can be used to track progress, as can speed studies done by state and local agencies.

One individual stated that the costs of the measure outweigh the benefits, though the intent is laudable.

The commission notes that the one-time cost for changing the speed limit signs will be incurred by the Texas Department of Transportation and is estimated to be approximately \$2,000,000 (\$300.00 per small speed limit sign and \$600.00 per large speed limit sign). The measure will generate significant fuel and cost savings; 2007 estimates are savings of 92,000 gallons of fuel and associated cost savings of approximately \$110,000 per day. Enforcement costs may be partially or fully offset by income generated from fines paid by speeding drivers. The benefits of the measure include cleaner air and fuel savings. The commission believes that the benefits of the measure outweigh the costs.

One individual suggested the installation of governors on private and commercial vehicles as a means of ensuring compliance with the speed limit reduction measure.

The commission appreciates the suggestion, but notes that the installation of governors on private and commercial vehicles is beyond the scope of the current SIP proposal. The commission will evaluate the suggestion for possible inclusion in future air quality initiatives.

The Texas Public Policy Foundation and six individuals commented that the lower speed limits would cause vehicles to be on the road longer, which means that the vehicles would be producing emissions for longer periods of time. The Foundation also questioned the ability of current models to capture the complexity of the speed/emissions tradeoff. Three individuals commented that the lower speed limits will increase commute times. One of the three individuals commented on the economic cost of increasing commute time.

The commission agrees that the lower speed limits may increase commute times and cause vehicles to be on the road producing emissions for longer time periods, but notes that the time increase caused by the reduced speed limits will be minimal. For example, it will take a driver 1 hour to complete a 65 mile commute at 65 mph, while it will take a driver 1 hour and 5 minutes to complete a 65 mile commute at 60 mph. The commission also notes that EPA requires the use of the MOBILE emissions model when calculating emissions for regulatory purposes and the MOBILE model generally indicates that vehicles produce more emissions at higher speeds. For example, the MOBILE5a_H 2007 composite NO_x emission rate for a vehicle in the DFW area is 1.91 grams per mile at 65 mph and 1.69 grams per mile at 60 mph. This means that the vehicle traveling 65 mph for one mile produces more emissions than a vehicle traveling the same mile at 60 mph, even though it takes the slower vehicle more time to travel the mile. Please see the response to the comment on vehicle emission rates below for more details. The commission also notes that the economic cost of the slightly increased commute time created by the reduced speed limits may be offset by the increased fuel savings associated with the measure.

Four individuals generally commented that vehicle emissions at highway speeds are consistently low with little variance associated with changing cruising speed. One of the individuals asked for data showing emissions rates at 30 and 60 mph and indicated that the 60 mph vehicle would produce one minute worth of emissions for one mile traveled, while the 30 mph vehicle would produce two minutes worth of emissions for one mile traveled. The individual also indicated that the commission has not provided the public with any statistical data to help them make decisions regarding the measure. One of the individuals stated that new cars running at 55 mph and 70 mph both read "0" for NO_x, while one of the individuals indicated that emissions for properly running cars at highway speed vary infinitesimally when changing running speed.

As previously noted, the EPA requires the use of the MOBILE emissions model when calculating emissions for regulatory purposes. The MOBILE model calculates emissions in grams per mile. The MOBILE model generally indicates that vehicles produce more emissions per mile at higher speeds. If the speed is multiplied by the emission rate, emissions in grams per hour can be calculated, which indicate that vehicles operating at higher speeds emit more per hour (see table below). Example MOBILE5a_H 2007 DFW composite emission rates for VOC and NO_x at various speeds and the resulting emissions per hour are as follows:

SPEED	VOC Emission Rate (g/mile)	VOC (g/hr)	NO _x Emission Rate (grams per mile)	NO _x (g/hr)
30 mph	0.69	20.7	1.17	35.1
35 mph	0.62	21.7	1.18	41.3
40 mph	0.57	22.8	1.19	47.6
45 mph	0.52	23.4	1.22	54.9
50 mph	0.50	25	1.30	65
55 mph	0.49	26.9	1.49	81.9
60 mph	0.52	31.2	1.69	101.4
65 mph	0.56	36.4	1.91	124.1

Composite emission rates are an average rate that accounts for the area's vehicle fleet composition (cars, gas trucks, heavy duty diesel trucks etc.) and age distribution (% of fleet that is 1 year old, 2 years old etc.). The emission rates listed here are for vehicles that participate in the Texas Motorist's Choice inspection and maintenance program, so the rates are generally reflective of rates for properly running cars. The commission notes that new cars do have lower emission rates; however, the vehicle fleet in DFW is not made up of only new cars and control measures have to be developed accordingly. The commission agrees that statistical data regarding the measure may not have been adequately addressed in the proposal and has revised the SIP to include supporting statistical data.

Nine individuals commented that the speed limit reduction measure would not work, since vehicles cannot travel as fast as the speed limit allows in rush hour.

The commission agrees that vehicles often cannot travel as fast as the speed limit allows during rush hour and has revised the SIP to indicate that no emissions reductions were claimed for vehicles on roadways during time periods when speeds are lower than the reduced speed limit. The emissions reductions associated with the speed limit reduction measure occur primarily during off-peak travel times and on roadways that are not excessively congested.

Six individuals commented that roadway congestion is the main source of excessive vehicular emissions. Two of the individuals indicated that the reduced speed limits will increase congestion, which will increase emissions.

The commission agrees that roadway congestion is a significant source of vehicular emissions and notes that state and local transportation agencies are actively working to reduce congestion in the DFW region. The NCTCOG is responsible for the region's 20 year transportation plan and has identified congestion relief as one of the plan's top priorities. The commission cannot require specific actions for congestion relief, but can credit the area for emissions reductions associated with congestion relief projects. The NCTCOG has committed to the implementation of many such projects as transportation control measures in the SIP. The commission also notes that the reduced speed limits will not significantly increase congestion. Congestion is a function of excessive demand on roadway capacity; under congested roadway conditions speeds are typically lower than the reduced speed limits.

Two individuals commented that traffic experts should set speed limits based on sound engineering principles. One of the individuals also stated that the only legitimate purpose of speed limits is to make highways safer. The other individual noted that the law will have to be changed to set speed limits for pollution reasons because the law requires speed limits to be set by traffic experts using a traffic study.

The commission agrees that traffic experts should generally set speed limits based on sound engineering principles; however, the commission believes that adjustments to those limits should be made if conditions warrant. Although the commission agrees that a legitimate purpose of speed limits is to make highways safer, the commission believes that protection of public health through improvements in air quality is also a legitimate purpose for setting speed limits. The commission notes that TxDOT has proposed revisions to the Texas Transportation Code on February 24, 2000 which would establish procedures allowing speed limits to be changed for emissions reductions purposes.

Two individuals commented on the safety impacts of speed limits. One of the individuals commented that we now drive 70 mph and have never been safer on the road. The other individual commented that reducing speed won't reduce the number of accidents; the number of accidents don't correlate with speed, they correlate with the speed differential between the fastest and slowest cars. The individual noted that when the speed limit is lowered by 5 mph, some drivers will comply and some will continue to drive reasonable and prudent speeds. The reasonable and prudent speeds will stay the same after the speed limits are lowered, so the speed differential will have increased by 5 mph; this will increase the number of accidents. One individual further noted that accidents cause traffic to slow down or stop, which increases idling and pollution.

The commission has conducted further research on the relationship of speed and accidents and agrees that reducing the speed limit won't necessarily reduce the number of accidents. The commission agrees that the speed differential between the fastest and slowest cars is a contributing cause of accidents, but notes that many other variables are involved as well, such as weather conditions, roadway conditions, traffic conditions, stopping distances and human error. The commission agrees that accidents often cause traffic to slow down and stop, which may increase traffic and pollution. However, the commission does not agree that the reduced speed limits will increase accidents; as noted above, accident rates are determined by many variables. The measure may or may not result in an increased speed differential; the magnitude of the speed differential will be dependent on drivers' compliance rates. The commission also notes that stopping distances decrease as speed decreases; the reduced speed limits may reduce the number of accidents caused by a vehicles inability to stop soon enough. The commission has removed the language from the SIP which indicated that the measure would reduce the number of accidents.

One individual commented that 55 mph speed limits hurt people and cause economic destruction in our state and stated that the measure would penalize parents and citizens of the state.

The commission notes that the DFW SIP proposal would not lower speed limits to 55 mph. The commission does not agree that 55 mph speed limits could hurt people and cause economic destruction in the state. The commission also does not agree that the measure would penalize parents and citizens of the state.

One individual commented that the increased low level ozone is due to more vehicles on the road and noted that it was strange that this relation has not been reflected in the plan except for the lowering of the speed limits. The individual also noted that the speed limit reduction measure was not sufficiently long-term or stringent.

The commission agrees that increased low level ozone is partially due to more vehicles on the road, but notes that the SIP addresses on-road vehicle emissions through several strategies; an expanded inspection and maintenance program, an expanded reformulated gasoline program, clean diesel in the twelve counties and numerous transportation control measures. The modeling that supports the SIP indicates that the speed limit reduction measure, when considered together with all other measures, demonstrate attainment of air quality standards by 2007. The commission therefore believes that the measure is sufficiently stringent. The commission notes that the speed limit reduction measure does not specify an ending date and will be in effect indefinitely. The commission therefore believes that the measure is sufficiently long-term.

Three individuals commented on vehicle performance characteristics as related to emissions. One of the individuals noted that traffic travels at its own speed, conditions allowing and that the main emissions problem occurs when vehicles accelerate up to speed. One of the individuals indicated that he had heard that Loop 12 would be reduced to 45 mph and indicated that cars are not made to go 45 mph, they are made to go 55, 60 and 70 mph. The last individual commented that the economic or cruising speed (45 to 60 mph) depends on several factors, primarily vehicle shape and weight. The individual noted that most cars in circulation today are fueled by electronic fuel injection systems so emissions are a nearly constant fraction of the amount of fuel used; the less fuel used to make a given trip, the less pollutants produced. The individual further noted that the least fuel is used when a vehicle runs as close as possible to the economic range. The individual also mentioned that idling should be avoided and low speeds of 30 to 40 mph are bad for pollution. The individual suggested implementing traffic signal synchronization, avoiding setting speeds that are artificially low and minimizing idling, braking and accelerating.

The commission agrees that vehicles operating in acceleration mode do produce higher emissions than vehicles operating in cruise mode. The commission notes that the reduced speed limits would decrease acceleration time and related emissions, since it would take less time to reach cruising speed at lower speed limits. The commission notes that the measure will not reduce speed limits to 45 mph and does not believe the measure will have any detrimental effects on vehicles operating characteristics. The commission agrees that the economic, or cruising speed of a vehicle does affect the vehicles emissions; however, the commission notes that many variables (speed, maintenance, fuel type etc.) determine a vehicle's actual emissions. The commission also notes that the EPA requires on-road vehicular emissions to be calculated using the MOBILE model for regulatory purposes. Example emission rates for speeds between 30 and 65 mph, and the corresponding emissions in grams per hour (speed multiplied by emission rate) are listed in the response to the comment addressing vehicle emission rates; please refer to it for further information. The

commission agrees that traffic signal synchronization and minimizing idling, braking and acceleration will generally help reduce vehicular emissions.

Two individuals commented on speed related air quality trends. One individual noted that the air was worse when the speed limits were 55 mph. The individual also noted that traffic during peak times clogged up and took longer to unclog with the 55 mph speed limit than with current speed limits and indicated that the speed limits should not be changed. One individual commented that the reduced speed limits will not work. The individual stated that the speed was as low or lower on all roads affected by the proposed speed limit reduction measure as late as 1996 and the DFW area was nonattainment then. The individual asked the commission to examine pre and post 1996 (when the speed limits were raised) emission trends, factoring in weather and see if any change can be attributed to speed limit changes.

The commission notes that both air quality and traffic conditions are dependent on a number of variables, only one of which is vehicle speeds. As such, it would be difficult to isolate the effects of, and analyze, the air quality or traffic impacts of previous speed limits. The commission does not have the resources to pursue such a study at this time.

Eight individuals questioned how speed limits are decided and asked why the speed limit was 60 mph on I30 and 65 mph on SH 183.

Speed limits are set according to the provisions of the Texas Transportation Code, which generally requires a speed zone study to be conducted and the 85th percentile speed to be determined. The 85th percentile speed is a speed at or below which 85 percent of people drive under good conditions and is generally considered to be the maximum safe speed for the location. The 85th percentile speed may determine the speed limit or it may be further adjusted to account for other factors such as environmental concerns. TxDOT is generally responsible for setting speed limits. The commission suggests the eight individuals contact the appropriate TxDOT District office for information on roadway specific speed limits.

One individual noted that the measure would only affect roadways in the outer edges of the nonattainment counties, which is a low percentage of highway miles. The individual commented that the measure is a trim around the edges solution which would not be popular. The individual indicated that the commission is placing the bulk of the new initiatives and costs on the backs of the surrounding rural counties.

The commission notes that the measure will affect all roadways in the nine county area that have modeled speeds equal or above the reduced speed limit. The commission agrees that many roadways in the outer edges of the nonattainment counties will be affected by the measure. The commission notes that the measure is one of several proposed for the region; when considered in total, the proposals are not a trim around the edges solution that place the bulk of new initiatives on the surrounding rural counties. The commission believes that the measure will be accepted by the public because it is a relatively painless way to contribute to better air quality.

One individual proposed alternatives to the speed limit reduction measure: change all left-turn signals to allow for yield on green except where visual or other safety concerns preclude. Computerized signal authorization alone reduced emissions over sixteen percent in the Virginia. Also redirect traffic enforcement resources to the high speed freeways on ozone action days to more rigorously enforce the existing speed limits.

The commission appreciates the suggestions and agrees that traffic signal improvements do offer a significant source of vehicular emissions reductions. NCTCOG has committed \$6.2 million dollars to a regional traffic signal integration and monitoring project, which will evaluate and improve approximately 3,500 signals in the DFW area. The regional traffic signal program has been included in the SIP as a contingency for the VMEP program. The commission also agrees that significant emissions reductions could be achieved by redirecting traffic enforcement resources to the high speed freeways on ozone action days to vigorously enforce existing speed limits.

One individual noted that it is often difficult to see speed limit signs.

The commission notes the individual's comment and will relay it to the appropriate agencies.

Energy Efficiencies Comments

The NTCASC, the City of Athens, the Home Builders Association, the Waste Reduction Advisory Committee, Environmental Defense, the 44 members of the Texas Air Crisis Campaign, and three individuals support the energy efficiencies program. The Greater Fort Worth Sierra Club support the adoption of strong energy efficiency requirements for all new construction and for appliances.

The commission appreciates the support.

One individual commented that we cannot expect enough NO_x reductions from energy efficiencies.

The commission agrees that NO_x reductions from energy efficiencies are small compared to other programs, however all possible reductions are necessary and will help to attain the ozone standard in DFW.

The Waste Reduction Advisory Committee commented that the commission should require implementation of building codes on a statewide level instead of limiting it to the 12-county DFW area.

The commission cannot implement the program on a larger area than what was proposed at this time. However, the commission is evaluating the idea of implementing this program on a regional or statewide level concurrent with the attainment demonstration for the HGA area.

The Waste Reduction Advisory Committee, the Dallas Sierra Club, Downwinders at Risk, the Fort Worth Sierra Club, Sustainable Economic and Environmental Development, the Texas Campaign for the Environment, Texas Clean Water Action, Texas Public Citizen, the Green Party of Tarrant County, State Representative Lon Burnam, and 198 individuals support EPA's Energy Star program and the 2000 International Energy Conservation Code standards instead of the 1998 plan proposed.

The commission agrees and is incorporating the 2000 standards into the program instead of the 1998 model as proposed.

One individual encouraged the insulation of older homes. The Dallas Sierra Club, Downwinders at Risk, the Fort Worth Sierra Club, Sustainable Economic and Environmental Development, the Texas Campaign for the Environment, Texas Clean Water Action, Texas Public Citizen, Environmental Defense, the 44 members of the Texas Air Crisis Campaign, and one individual suggested updating rental homes, apartments and commercial space, and existing single family housing by retrofitting with energy efficiency measures.

The Dallas Sierra Club, Downwinders at Risk, the Fort Worth Sierra Club, Sustainable Economic and Environmental Development, the Texas Campaign for the Environment, Texas Clean Water Action, Texas Public Citizen support a major appliance replacement program to see older, less efficient appliances swapped for newer models.

Environmental Defense and the 44 member of the Texas Air Crisis Campaign offered the following energy efficiency ideas: 1) expand areas to which building codes apply; 2) energy efficient mortgages; 3) industrial motor and drive systems; 4) IRP for natural gas; 5) efficiency based natural gas rates; 6) performance based ratemaking for distribution utilities; and 7) tax credits for purchasing energy efficient appliances.

State Representative Tommy Merritt encouraged the use of energy efficient technologies such as cogeneration and utilizing clean burning natural gas.

One individual offered the following additional energy conservation ideas: 1) insulating concrete form exterior shell homes, 2) structural insulated panel interior walls, 3) geothermal HVAC air conditioning, 4) graywater and rainwater recycling, 5) photovoltaic roofs, and 6) inside and outside design and appearance of homes.

The vision for this program was to enforce the 2000 International Energy Codes for new construction and development. Therefore, these additional ideas are beyond the scope of what was proposed at this time. However, the commission will continue to evaluate ways to obtain credit for such programs (such as through a trading program) for inclusion in future planning efforts.

EPA commented that there is no proposed state rule or proposed ordinances to implement the proposed program. We must submit rule or ordinances before our modeled beginning date of ozone season 2001 or else remove this program's reductions from the SIP or model with a later start date. The City of Dallas supports the energy efficiency program but notes that this it requires local ordinances.

The commission is aware that a rule or local ordinances are required in order to meet the enforceability requirements of this program. The commission will be obtaining all required ordinances by the 2001 start date of the program. Since the program is not enforceable at this time, the commission will be incorporating these reductions into the WOE argument (see Chapter 6).

The Home Builders Association commented that a wide variety of designs, building materials, and appliances must be allowed to be used in the effort to achieve an energy goal.

The commission agrees that a wide range of designs, building materials, and appliances should be available to builders, however, these devices must be as clean as possible so that air quality is not compromised.

The Home Builders Association commented that they are committed to providing additional instruction to its members about energy efficiencies in residential construction and will partner w/building officials of the region to determine the most suitable energy codes and practices of the region

The commission appreciates the commitments made by the Home Builders Association.

One individual commented that technology exists but there is a great deal of resistance on the part of commercial buildings. One individual commented that incentives are needed such as tax abatements with

a time limit to get buildings into compliance. One individual commented that builders do not want to incur the cost of retrofits because they are not the ones that will reap the benefit in reducing electrical costs

One individual commented that the idea of cleaner homes and buildings is potentially useful, but should never be mandated.

The energy efficiency program is based on new construction and development using the 2000 International Energy Conservation Code standards. Retrofit programs were not envisioned to be a feasible aspect of the program.

VMEP Comments

The City of Dallas commented that it supports the adoption of a VMEP program in the four core counties of the DFW area.

The commission appreciates the support.

EPA commented that the state must submit documentation on the program, including identification of each program measure relied upon and its corresponding projected emissions reductions. The calculation of the relied upon emission reductions must be in accordance with EPA *Guidance for Incorporating Voluntary Mobile Emission Reduction Programs in State Implementation Plans*, dated October 24, 1997.

The commission has incorporated all of the necessary information into the SIP regarding the VMEP program. The information included complies with EPA's VMEP guidance.

INSPECTION/MAINTENANCE SIP

Compliance Rate

EPA stated that Appendix J should verify the compliance rate claim and the requirement for registration denial-type compliance enforcement should be stated more definitively in the SIP.

The Vehicle Safety Inspection Compliance Survey dated January 1996 verifies the compliance rate for Dallas, El Paso, Harris, and Tarrant counties. The survey indicates an average compliance rate for all four counties of 95.81%. With the recent implementation of the re-registration denial enforcement mechanism, compliance is expected to be 96%.

References to the use of registration denial enforcement in “Chapter 11: Motorist Compliance Enforcement” have been made more definitive by replacing the term may with the term will.

Program Enforcement

EPA stated that an updated procedures manual for overt and covert performance audits, record audits, and equipment audits for the new testing should be included in the SIP.

The DPS has a procedures manual titled, “The Vehicle Emissions Inspection and Maintenance Rules and Regulations Manual for Official Vehicle Inspection Stations and Certified Inspectors”, (2/97). This manual addresses the requirements for emissions-related inspections. Stations in Dallas, Houston, and El Paso I/M program areas must adhere to guidelines in the manual. While the manual does not discuss the procedures for covert performance audits, record audits, nor equipment audits because it would hamper the enforcement process, the hand book is used by both overt and covert auditors to check that inspections are being carried out as required.

“The Vehicle Emissions Inspection and Maintenance Rules and Regulations Manual for Official Vehicle Inspection Stations and Certified Inspectors” will be updated within 90 days of the Commission final rule making to address, at a minimum, On-Board Diagnostics testing, loaded-mode testing such as Acceleration Simulation Mode-2, and statewide testing of fuel caps.

HOUSTON/GALVESTON SIP

Several individuals commented on the insufficient space available for the January 31, 2000 public hearing held in Houston, and made a number of recommendations for improving the logistics and other aspects of the hearing process.

The commission values public input during the development of its rules and SIPs, and wants to assure that everyone is given the opportunity to participate in public hearings. The upcoming attainment demonstration SIP, which will contain rules that implement the attainment control strategy, will have public hearings in late summer 2000. The commission plans to hold several hearings within the 8-county area in venues that are accessible and of appropriate size for the expected turnout.

EPA commented that the state does not commit to revise the motor vehicle emissions budget (MVEB) based on Mobile 6 within one year after issuance of the model, as required by EPA policy. EPA stated that if this requirement is not changed, the state must provide a letter by March 15, 2000, committing to revise the SIP using Mobile 6 one year after it is issued, in order for EPA to complete its adequacy determination by May 31, 2000. In addition, EPA stated that by March 15, 2000, the state must commit to revise the MVEB if rules are later adopted that affect on-road emissions. Furthermore, EPA stated that by March 15, 2000, the state must request for parallel processing of EPA's adequacy determination.

EPA is expected to release MOBILE6, an enhanced version of its mobile source model, by Fall 2000. Application of MOBILE6 to the HGA inventory will likely change the on-road mobile source emissions inventory, and hence the MVEB used for transportation conformity purposes.

The commission commits to perform new mobile source modeling, using MOBILE6, within 24 months of the model's release. In addition, if a transportation conformity analysis is to be performed between 12 months and 24 months after the MOBILE 6 release, transportation conformity will not be determined until Texas submits a MVEB which is developed using MOBILE 6 and which the Environmental Protection Agency finds adequate. Finally, if any of the measures adopted in the SIP pertain to motor vehicles, the commission commits to recalculate and resubmit a MVEB by December 31, 2000. The same approach will be applied to the DFW area as well. The Houston-Galveston Area Council, the Department of Transportation, and the NCTCOG have been informed of these commitments.

EPA commented that the SIP language should specifically use the term "ROP plan" rather than "ROP analysis," which was contained in the SIP proposal.

The wording in the SIP has been changed as recommended by EPA.

EPA commented that the following measures on the proposed gap closure list appear to be preempted by the Federal Clean Air Act (FCCA): combustion controls on port equipment, diesel powered tug boats, operation controls on air craft, and lawn and garden equipment replacement. EPA further commented that NO_x catalyst retrofits for on-road and off-road HDDVs and controls on airport ground support equipment (GSE) need to be crafted carefully to avoid preemption issues.

Any rule adopted by the commission in the future would comply with both state and federal law relating to preemption. The commission will consider all preemption issues during rule drafting

and prior to adoption of any rules to implement measures on the gap closure list deemed necessary to attain the ozone standard. The commission intends to use the rules adopted for the DFW area as a starting point for the HGA attainment SIP.

EPA commented that the SIP should clearly state that only shortfall measures may be adopted after December 2000, and then only in cases where they cannot be adopted more expeditiously (such as for measures requiring legislative authority, for example). In addition, EPA stated that any measures necessary for ROP cannot be delayed beyond December 2000.

Language in the SIP has been revised to be consistent with EPA's comments.

The Honorable Sheila Jackson Lee, U.S. House of Representatives, 18th District, stated support for measures to reduce pollution in Houston, and offered assistance from her office in helping to accomplish this task.

The commission appreciates the support, and welcomes the opportunity to work in cooperation with Representative Lee and other elected officials to meet air quality goals in the HGA area.

The Environmental Defense commented that the extrapolation technique used by EPA to determine the attainment shortfall did not follow EPA's guidance, because the resulting gap of 118 tpd NO_x represents an attainment target of 289 tpd NO_x, which is over 25% higher than the 230 tpd modeled in the May 1998 SIP. Environmental Defense further commented that if an extrapolation technique is used to calculate the attainment shortfall, the methodology must be no less stringent than that used for other areas of the country. Environmental Defense also stated that the shortfall demonstration is legally unsatisfactory because it fails to adjust the reduction calculations from any one strategy which are affected by others (both those in the shortfall calculations as well as in the previous SIP revision). Environmental Defense commented that the shortfall demonstration includes on-road mobile source reduction strategies, but fails to adjust the MVEB accordingly.

The modeling for the May 1998 HGA SIP considered the effects of across-the-board NO_x reductions, not specific NO_x control strategies. EPA required the submission of additional modeling addressing specific control strategies in order to approve the SIP. This modeling and SIP revision were submitted to EPA in November 1999. The attainment budget of 230 tpd NO_x contained in the May 1998 SIP must be considered as a preliminary target, which has been superseded by more detailed modeling. Therefore, it is no longer appropriate to use the 230 tpd figure when referring to the attainment budget. Since the November 1999 SIP did not show modeled attainment, no attainment budget was given in that SIP. With regard to adjusting reduction estimates that are affected by others, a new modeling exercise would be required to properly determine the interactive effects of various control strategies. The commission staff did not have sufficient time or resources to perform new modeling by the April 2000 submittal deadline. With regard to revision of the MVEB, the upcoming attainment demonstration SIP will contain a revised MVEB. Since the current gap closure SIP is not the final attainment demonstration SIP, it would not be appropriate to revise the MVEB at this time.

Environmental Defense commented on several aspects of the previous SIP revision for HGA, which was submitted to EPA in November 1999.

The November 1999 SIP revision is not a subject of the current gap closure SIP. The commission will take comments during public hearings to be held in late summer 2000, and will respond to the comments in its evaluation of testimony.

The Galveston-Houston Association for Smog Prevention (GHASP) commented on the need for a holistic SIP that addresses the broad spectrum of pollutants in several media. GHASP stated that the commission should sponsor public education to encourage commercial broadcasters to air public service announcements and special reports. This could involve hiring a public relations firm. Currently, the state is forcing ordinary citizens to become air pollution experts.

The commission agrees that an educated public is better able to understand and participate in the SIP process. The commission will work with local stakeholders to review and, where needed, to improve public education efforts. The existing SIP process is not geared toward developing simultaneous attainment plans for multiple pollutants. For example, the fine particulate matter standard requires several years of monitoring, development of models, and preparation of emissions inventories before control strategies can be submitted to demonstrate attainment. Although the ozone SIP is on an earlier timeline, this does not imply that particulate matter is less of a concern.

GHASP commented that a variation of the SCAQMD in Los Angeles should be implemented in the HGA area, stating that it is not possible to manage local enforcement from Austin and in the abstract.

Air quality management districts in California developed as the result of problems and issues unique to that state. It is not immediately obvious that implementing such a system in Texas would have clear advantages over the present system. In any case, legislative action would be necessary to make such a change.

GHASP commented that speed humps, roofing tar pots, outdoor burning, and fireworks should be banned in Harris County by 2001.

The commission already restricts, but does not impose outright bans on, outdoor burning in Harris County. The commission has not considered the ozone impacts of the other listed measures, but invites the commenter to provide documentation of their effectiveness.

Several individuals made comments supporting more bicycle usage, including expanding the bicycle network; providing more racks for bicycle storage; providing bicycle racks on busses; providing shower facilities at employment; adopting design standards for bicycle/pedestrian lanes; educating motorists on sharing the streets with bicyclists; providing incentives to entices employers, retailers, and land developers to encourage bicycle use and provide bicycle facilities; providing safe bicycle/pedestrian school routes; requiring that restaurants and banks open their drive-through lanes to bicycle and pedestrian use; and generally marketing the overall personal and public benefits of bicycling. There were no general or specific comments opposed to bicycles.

The SIP contains TCM provisions for expanding bikeway networks, and the commission supports other innovative measures to encourage bicycling. The commission will consider the suggestions made by the commenters during development of the attainment demonstration SIP.

Many individuals and the Harris County Tax Assessor-Collector were in favor of developing cleaner gas, cleaner diesel, and low sulfur fuel standards for both on-road and off-road engines. The Port of Houston Authority (PHA) supported federal/California engine standards and incentive-based programs. Business Coalition for Clean Air (BCCA) and ExxonMobil Chemical suggested that before diesel emulsions are implemented, the issues of availability, feasibility, and cost-effectiveness be addressed. BCCA and ExxonMobil Chemical did not support region-specific fuels, and preferred federal Tier II low-sulfur gasoline. The Texas Industry Project (TIP) supported the development of new fuel technology that will reduce emissions, but suggested that any diesel emulsion program be a voluntary measure, noting that the air quality benefits and the effects on the equipment performance and safety are unknown. PHA expressed concern that some of the off-road control measures raise operational, safety, and environmental questions, and suggested that these measures be categorized as voluntary, not mandatory measures. PHA commented that it is initiating a demonstration project for use of diesel emulsion fuel in off-road diesel equipment.

The commission supports cleaner fuel standards, and has incorporated several such potential measures in the current SIP. Regarding new diesel emulsion fuels and other measures, during the upcoming development of the attainment demonstration SIP the commission will evaluate the effectiveness of these control strategies as voluntary measures.

TIP stated opposition to a mandated NO_x catalyst retrofit, stating that this would be a violation of the Federal preemption for regulating these engines. TIP suggested that incentive-based programs and VMEP measures be used to reduce emissions from heavy-duty, off-road engines. BCCA and ExxonMobil Chemical supported catalyst retrofits, but urged the commission to consider availability and scheduling in implementing the strategy. PHA questioned the economic feasibility and timely availability of NO_x catalyst retrofits, and stated that it has committed to demonstration projects for this technology.

The commission will evaluate these issues during the development of the December 2000 attainment demonstration SIP.

One individual was opposed to low RVP gasoline. The individual stated that the reduced vapor pressure reduces the fuel efficiency in carbureted engines, resulting in higher exhaust emissions.

On January 1, 2000, Phase II RFG requirements went into effect in the HGA area. As a result, gasoline RVP decreased from 7.1 to 6.9. The commission has included no specific measures in this SIP to further decrease RVP beyond current statutory requirements.

Many individuals were in favor of increasing the tax on fuels to discourage vehicle use and reduce the vehicle miles traveled by motorists. One individual suggested that the fuel price be maintained above a minimum price to discourage driving. The Texas Motor Cycle Association and City of Lake Jackson were opposed to a fuel tax increase, stating that they believe that the measure will not reduce emissions.

The commission will consider this type of incentive program in the development of the December 2000 attainment demonstration SIP.

One individual requested that the EquiVap method be used for calculating toxic emissions.

The commission implements control strategies for toxic air pollutants through the federal NESHAP, HON, and MACT programs. Although some of the toxics affected under these programs

are ozone precursors, and may be controlled to some extent by various potential measures included in the current SIP, this SIP does not specifically address toxics or methods for measuring them.

Many individuals were opposed to restrictions in VMT, noting that the availability of transit and other transportation modes are unavailable in the region to implement such a restriction. The City of Houston, Honorable Robert Eckels, Harris County Judge, Honorable Jimmy Sylvia, County Judge, Chambers County, and the Harris County Tax Assessor-Collector opposed such a program. BCCA supported incentive-based programs to reduce vehicle use, but stated that areas with limited transit options pose difficulties. METRO commented that it would need to increase its service if a no-drive restriction were mandated. The South Texas Section of the American Institute of Chemical Engineers (STS-AIChE) suggested that if such a measure were adopted, the police, fire departments, hospitals, and chemical plants should be exempted because of their necessary schedule of operation of 24 hours per day, 7 days per week. Several individuals were in favor of no-drive day restrictions.

In the current SIP, the commission has included a potential control strategy of 20% restrictions in time/area driving. The commission understands the challenges involved with implementing such a strategy, and will further consider these factors during development of the HGA attainment demonstration SIP, due to EPA in December 2000.

The Harris County Tax Assessor-Collector and ExxonMobil Chemical did not support vehicular control measures involving negative incentives and behavioral changes, and instead favored positive incentives. The City of Houston commented that such measures could erode public support for clean air programs, and recommended that, if these measures are necessary, they be implemented after the mid-course correction in the 2003-2004 time frame.

The commission desires to design a plan that is fair and reasonable, and recognizes that many of the measures will require public acceptance in order to be effective. These issues will be considered by the commission during development of rules for the attainment demonstration SIP.

An individual suggested the expansion of high occupancy vehicle (HOV) lanes, while another suggested that HOV lanes be opened for use by single occupancy vehicles.

The commission supports the HOV lane program in general as an incentive to increase the number of passengers per vehicle. The H-GAC is responsible for evaluation and recommendation of HOV lane expansions, as well as considering a relaxation of vehicle occupancy requirements to one passenger per vehicle.

Overall, many individuals' comments on lowering speed limits were evenly mixed in favor and opposition. Many suggested that highways in rural areas be allowed to operate at current speeds because they are used less than the urbanized areas. The STS-AIChE suggested that a test be done on reducing speed limits to quantify the benefits of the measure, and to incorporate any necessary changes during the mid-course review. The Lone Star Chapter of the Sierra Club commented that enforcing compliance with the reduced speed limit will be difficult, which will reduce the benefits of the measure. BCCA supported the measure. METRO suggested that HOV lanes be allowed to operate at higher speeds as an incentive to encourage multi-passenger travel. ExxonMobil Chemical recommended that all secondary safety, societal, and economic benefits or costs of this measure be evaluated by the commission.

The issues of cost/benefits, geographic areas affected, enforcement, and higher speed limits in HOV lanes will be evaluated by the commission during development of the attainment demonstration SIP. In estimating reductions from lowered speed limits, commission staff did not account for the interaction between changing VMT, traffic volumes, and resulting speeds. Detailed traffic modeling would be needed to account for this interaction.

Several individuals were in favor of implementing TCMs to improve the flow of traffic. One individual suggested that a TCM cost/benefit analysis be done so that the best measures are chosen. Judge Eckels commented that HGA is participating in a nationwide pilot project to quantify telecommuting emission credits, and recommended that the HGA area should develop a program to take air quality credits from telecommuting. METRO supported the implementation of computerized traffic signalization, and also noted that they will participate in implementing TCMs. The Lone Star Chapter of the Sierra Club strongly supported TCMs. AAA Texas was opposed to implementing TCMs stating that TCMs are ineffective, expensive, and unpopular.

The commission supports inclusion of TCMs in the ozone control strategy. In cooperation with HGA stakeholders, commission staff used the newest version of EPA's Commuter Model to calculate reductions from a variety of TCMs. One notable increase in estimated reductions was for telecommuting, which increased from the 0.04 tpd NO_x in the proposal, to 3.00 tpd NO_x in the adopted SIP. The commission will continue to evaluate TCMs and to refine previous reduction estimates for incorporation into the December 2000 attainment demonstration SIP.

METRO commented that its study of the impact of 50% bus fare reductions resulted in a decrease of 0.08 tpd NO_x, but at a cost of over one million dollars per ton of NO_x reduced. METRO stated that if it were forced to subsidize the fare reduction through its current operations budget, the level of service would have to be cut back, thus probably leading to less ridership. METRO commented that it will evaluate more aggressive market promotions as a tool to increase transit riders.

This item on the gap list was renamed as "bus fare promotions." The commission will review data on transit ridership before going forward with rules and voluntary measures for the HGA attainment demonstration SIP.

METRO commented that the estimate of 2.04 tpd NO_x reductions on the gap closure list sounds low for 1,000,000 additional riders, and stated that its current average daily ridership is about 340,000 rides.

The 1,000,000 figure on the gap closure list is a typographical error, and has been corrected to 100,000.

Many commenters made suggestions concerning highways, such as decreasing the time for construction of new highways; limiting freeway use by decreasing the number of entrance/exit ramps; placing a five-year moratorium on highway construction; restricting added capacity projects; building more highways; permitting new sub-division links to the street/highway network; limiting the SOV use of freeways during the peak travel times during ozone season; and increased enforcement of the current traffic regulations.

The H-GAC is charged with evaluating the air quality impact of highway construction projects under the transportation conformity rules. The suggested measure for decreasing the time for new highway construction lies within the authority of TxDOT, not H-GAC or the commission. The

commission will continue to work closely with H-GAC to develop appropriate highway measures that can meet the transportation conformity budget.

A few comments were received favoring the accelerated purchase of cleaner off-road engines. BCCA and ExxonMobil Chemical supported the measure, provided that availability and schedule feasibility are addressed. TIP and PHA were opposed to accelerated purchase, stating that manufacturers cannot produce the amount of equipment quickly enough to meet the increased demand of the Tier III equipment, and also that the accelerated purchase requirement would be a violation of the Federal preemption for regulating this equipment.

The issues raised by the commenters were raised and addressed in the April 2000 rule adoption for the DFW attainment demonstration. The flexibilities allowed for affected equipment in the DFW area will serve as a starting point for the proposal of similar rules for HGA. The commission will consider these issues in the development of attainment demonstration rules for HGA, to be submitted to EPA in December 2000.

A few individuals commented in favor of cleaner off-road engines. Judge Eckels recommended that the commission develop an incentive program to rebuild, retrofit, or replace older diesel engines, similar to the Carl Moyer program in California. PHA favored a Carl Moyer-like program or use of EPA's VMEP. The Lone Star Chapter of the Sierra Club suggested that cleaner off-road engines be required statewide. The STS-AICHe suggested that incentives be provided to accelerate the market penetration of the cleaner engines. Other suggestions for reducing the emissions from off-road engines included banning gas-powered yard tools, requiring electric lawn mowers, and installing catalysts on heavy-duty, off-road equipment.

Federal standards, which preempt state implementation of off-road engine standards, are applicable nationwide. The commission is considering implementing the California spark ignition standard for certain off-road engines in the HGA area. In addition, the commission is investigating several promising technology advances concerning diesel emission fuels and catalyst retrofits. All these potential measures are included in the gap closure list in the current SIP. The commission is interested in pursuing financial incentive programs for cleaner off-road engines, and continues to work with HGA stakeholders in exploring and developing such programs.

Several individuals, including the Honorable Jimmy Sylvia, County Judge, Chambers County, and companies, including Bearden Contracting Company, Conrad Construction Company, Inc., the Greater Houston Builders Association, John G. Holland Construction Company, Inc., Houston Contractors Association, Mobley Industries, E. E. Reed Construction, Inc., Ray Smith Construction, and T & C Construction were opposed to restricting construction during the morning and shifting it to the evening. The commenters noted that construction during the evening hours would hinder the safety of its employees and also reduce the amount of time employees can spend with their families, that construction costs would increase, and that the cooler temperatures during the morning period are necessary for proper application of surface coating materials. The City of Houston recommended that this control measure be phased in by 2004-2005, and suggested additional photochemical modeling to determine whether the construction work schedule could be limited to the peak ozone season and extended for more operating hours per day.

The commission will consider the safety, operational, and social impacts of this potential measure during development of attainment demonstration rules later in 2000. The flexibilities allowed for

affected construction equipment in the DFW area, contained in rules adopted by the commission in April 2000, will serve as a starting point for the proposal of similar rules for HGA.

The City of Houston recommended that the commission develop a NO_x inventory of off-road mobile sources as soon as possible. The STS-AICHe stated that the off-road emissions inventory should be improved so that the proper emissions can be targeted for reductions. The STS-AICHe also suggested that a moratorium be placed on highway construction during the mid-August to mid-September high ozone seasons.

Commission staff, working in cooperation with stakeholders and contractors, is developing improved off-road emissions inventories, in particular for off-road construction equipment. Although the November 1999 SIP contained modeling of a 5-hour shift in the operation of construction equipment, the commission has not considered an outright ban on construction activities.

Many individuals and groups were in favor of adopting the California LEV standards for light-duty vehicles. The AAA Texas, League of Women Voters, Lone Star Chapter of the Sierra Club, Mothers for Clean Air, and STS-AICHe were in favor of adopting cleaner engines standards. AAA Texas, BCCA, and ExxonMobil Chemical noted that the California LEV standards provide little benefit over the Federal Tier II standards. The Lone Star Chapter of the Sierra Club suggested that California LEV standards be a statewide requirement. The STS-AICHe suggests that tax incentives be provided to accelerate the market penetration of the newer vehicles.

The commission is evaluating the implementation of California LEV standards statewide, starting in 2007. The incremental benefit of 0.13 tpd NO_x is contained in the gap closure list in the current SIP. The commission will evaluate further incentive measures during development of the December 2000 attainment demonstration SIP.

A few individuals suggested that catalysts be used on HDDVs. Mothers for Clean Air commented that measures to reduce HDDV idling should be adopted. The City of Houston suggested that public safety vehicles be exempted from any restrictions on vehicular idling. The STS-AICHe suggested that HDDVs be allowed to use HOV lanes to reduce the high NO_x emissions caused by stop-and-go traffic in the SOV lanes.

The commission is evaluating the use of retrofit catalyst technology on both on-road and off-road HDDV engines. Credits from these reductions are contained in the gap closure list in the current SIP. Any changes in the use requirements for HOV lanes is the responsibility of the H-GAC. The commission will continue pursuing control strategies for additional reductions from HDDV engines.

Many individuals' comments on expanding vehicle I/M to the entire 8-county HGA area were evenly mixed in favor and opposition. The City of Houston recommended phasing in the program, with early emphasis on government, school, and private employer participation. The City of Houston also recommended implementing a public education program before starting the I/M program. One individual stated that increased enforcement of I/M testing is necessary. AAA Texas commented that the results of California's ASM I/M program have been below expectations.

The commission believes that an expanded ASM-equivalent I/M program, encompassing the entire 8-county HGA area, is a cost-effective measure with substantial air quality benefits for the area.

Expanded I/M has already been included in the November 1999 SIP and is not specifically addressed as a potential control measure in the current SIP. The commission will evaluate the issues raised by the commenters in developing the December 2000 attainment demonstration SIP.

The Honorable Jimmy Sylvia, County Judge, Chambers County, stated that vehicle I/M for Chambers County is unreasonable because of the small contribution made by the county's registered vehicles.

Harris County is currently the only county in the HGA area with I/M testing requirements. In modeling potential benefits from expanding I/M testing, the commission staff included the entire 8-county HGA area, which includes Chambers County. Although portions of Chambers and other counties in the HGA area may be partly rural in nature, the total air quality impact of trips originating in these counties for employment, shopping, and recreational purposes is not negligible. The commission has not proposed rules for expanded I/M in the HGA area, but will take these comments into consideration during its rule development process later in 2000.

The Harris County Tax Assessor-Collector (HCTAC) opposed a "pay-at-the-pump" liability insurance program, stating that insurance should not be combined with emission controls. HCTAC also commented that a higher registration fee for owners of multiple vehicles would increase the burden on families. HCTAC supported transportation subsidies or free tolls for low-emission vehicles.

The commission will take these comments in consideration when developing the final attainment demonstration rules for HGA.

HCTAC submitted its report titled "Eight-County Registered-Vehicle Fleet Study," which concluded that, using the most recent 1999 HGA vehicle registration data, the onroad vehicle fleet mix used in previous SIP modeling (based on 1993 registration data) overestimates emissions from these vehicles. HCTAC recommended that the following issues be addressed: 1) resolve discrepancies in mean vehicle age difference; 2) correct the 13.9% overestimation of Harris County vehicle data; and 3) resolve discrepancies in the light-duty to heavy-duty ratio for both gasoline- and diesel-powered vehicles.

The commission's responses are listed in the same order as given by the HCTAC: 1) The commission agrees that the mean age by model year should be different with the new vehicle registration data, although an analysis is required for each of the 25 model years to be consistent with the MOBILE model. 2) The commission does not agree that the 13.9% overestimate for vehicles exists, because running the 1993 registrations through the MOBILE model revealed only up to a 4% deviation; MOBILE re-allocates these deviations caused by rounding error and normalizes the sum to be 1.000. 3) Data on VMT mix are not a function of vehicle registration, but are derived from ground count data using automated or manual observations.

Several individuals and groups (BCCA) commented in favor of a vehicle scrappage program. AAA Texas commented that any scrappage program should be voluntary.

The vehicle scrappage rule, as adopted by the commission in April 2000, implements a voluntary program that is applicable in all nonattainment areas.

Several commenters made suggestions for reducing emissions from on-road motor vehicles, including limiting excessive acceleration; focusing requirements on the vehicles driven the most; placing requirements on "gas guzzlers"; taxing older vehicles; encouraging telecommuting; Texas Clean Fleets;

requiring 3-way catalysts on older cars; employer trip reduction programs; setting the minimum driving age to 18; requiring the auto/fuel industry to advertise the health effects from auto pollution; requiring students to ride buses; restricting automobile and related advertising; taxing cars with the exhaust on the right side of the vehicles; and banning all engines with six or more cylinders.

Many of these suggested measures are not within the commission's authority to implement. The commission has added a new measure to the gap closure list, namely, retrofitting pre-1990 medium-duty, gasoline-fueled vehicles such as school buses and parcel delivery trucks with 3-way catalysts. The commission will continue to evaluate other promising on-road control measures for inclusion in the December 2000 attainment demonstration SIP.

Many individuals commented that the focus in emission reductions should be on industrial point sources, and that grandfathering of industrial facilities should be eliminated. A few individuals endorsed a 90% NO_x emission reduction from point sources. Enforcing leak detection programs and plant upsets was another comment raised by other individuals. An individual favored more inspections, enforcement, and penalties placed on point sources. An individual favored replacing coal-fired power plants with natural gas-fired equipment.

The TCAA does not provide the commission authority to require permits from all grandfathered facilities. However, the Texas Legislature addressed the permitting of grandfathered facilities in Senate Bills 7 and 766 during the last session. The commission is implementing the requirements of those bills through other rulemakings. The reduction of point source NO_x by 90% was modeled and included in the November 1999 SIP, and is not specifically addressed in the current SIP. The current Chapter 117 NO_x RACT rules apply to all affected units, regardless of grandfathered status. The same applies to the new point source rules being developed for the December 2000 attainment demonstration SIP. The commission has proposed more stringent upset reporting requirements under separate rulemaking. The commission ensures that inspections and enforcement are adequate to effectively implement the rules. The 90% point source NO_x reduction requirement will apply to electric utility boilers, regardless of fuel type. The commission does not have the authority to require that natural gas be used instead of coal in the affected power plants.

A few individuals were opposed to further controls of point sources. One commented that the emissions from tall stacks contribute negligibly to ground level ozone.

Photochemical modeling conducted by the commission staff indicates that point sources, which comprise approximately 54% of all anthropogenic NO_x in the HGA area, must reduce NO_x by 90% overall. The commission disagrees with the comment that emissions from tall stacks make a negligible contribution to ground level ozone. The tallest stacks typically are found at electric utility plants, one of the largest sources of point source NO_x. Such NO_x emissions do contribute to ozone formation, although this may occur farther downwind than for low-level sources. Modeling has shown that, even if all point source NO_x were eliminated, the 1-hour ozone standard cannot be attained without substantial NO_x reductions from on-road and off-road mobile sources.

The Air Transport Association of America, Inc. (ATA) commented that state measures to control ground service equipment (GSE) at airports are prohibited by the FCAA (preemption provisions), the Federal Aviation Act, and the Airline Deregulation Act. Continental commented that the commission's estimates for GSE are higher than actual levels, and stated its intent to provide the agency with improved emissions

data. Continental provided a summary of its ongoing reduction measures. ATA and Continental stated that the potential GSE measures are technically infeasible. BCCA supported measures to electrify GSE.

The commission will consider these issues during development of the attainment demonstration rules for HGA, to be submitted to EPA in December 2000.

The Houston-Galveston Area Council (H-GAC) emphasized that the measures submitted with the current gap closure SIP revision should not be taken as final or enforceable, and that the commission must retain the ability to refine and revise the list for the December 2000 attainment demonstration SIP. The City of Houston commented that flexibility for alternative approaches should be allowed as long as attainment goals are met. PHA commented that the commission should emphasize that measures on the gap closure list are not to be construed as “enforceable commitments” to adopt rules.

Based on representations by EPA, the commission has the flexibility to delete, modify, or add measures on the gap closure list after submittal to EPA in April 2000, provided that all commitments for the attainment demonstration are met.

The City of Houston and PHA recommended that the SIP be re-examined and revised, if necessary, to eliminate technically infeasible measures. The City of Houston also commented that technology-forcing measures should be scheduled for implementation in the 2004 timeframe.

The SIP must contain technically feasible measures in order to be effective and enforceable. The commission is examining a large number of potential measures, some of which are on the leading edge of technology. These types of measures will probably be scheduled for the second phase of attainment demonstration rulemaking, to be submitted to EPA by July 31, 2001.

The City of Houston stated that it has initiated within the city’s operations a plan to achieve the NO_x reductions required by the SIP.

The commission commends the City of Houston for being proactive and taking a leadership role in meeting the SIP reduction requirements.

H-GAC commented that the commission, in cooperation with local stakeholders, should work with EPA and other federal agencies to reduce emissions from aircraft, locomotive, and marine engines. Judge Eckels recommended that voluntary, enforceable agreements (such as MOUs) be implemented to achieve reductions from these types of sources. The City of Houston urged the commission’s support in repealing provisions of the FCAA establishing federal preemption of on-road and off-road mobile source controls.

The commission agrees that control of such sources, which are beyond the state’s regulatory jurisdiction, is important in achieving the additional reductions needed for attainment. The commission intends to work with EPA and other federal agencies to ensure that all possible avenues are pursued in attaining the ozone standard in HGA.

PHA stated its support of commercial marine fuel incentives if applied to tug/tow/small harbor vessels, but expressed doubt about viability for ocean-going vessels because of the specificity of fuels, international jurisdiction of 90% of the ships that call at PHA, and the likelihood of ships refueling at other ports with cheaper fuel. PHA commented that restrictions on operation of push and tow vessels would lead to more overland shipping by truck, resulting in increased engine emissions and other

undesirable effects. PHA also commented that use restrictions on tugboats would increase the time spent in port by ocean-going vessels, thus increasing hotelling emissions. PHA commented that combustion controls on existing equipment (rich to lean ratio) are preempted under the FCAA, and that preventive maintenance is already being performed. PHA suggested that if either measure is implemented, that it be expanded to include all off-road equipment. PHA commented on legal issues surrounding regulation of international ships, and stated that in any case, the perception of long start-up/shutdown cycles is overstated. PHA commented that restricting use only to diesel-powered tugs would be ineffective because these are the only type of tugs operated by PHA, and stated that such a restriction would preclude the use of non-diesel fuels or technologies for tugs.

The commission will consider these issues during development of the attainment demonstration rules during 2000.

H-GAC commented that financial assistance will be needed for many of the potential measures, and that the commission should work with local stakeholders to develop a financial incentive program. The Harris County Tax Assessor-Collector favored tax incentives for fleet conversions, refinery conversions to low-sulfur fuels, and industrial emission reductions.

The commission is interested in promoting financial incentives, and will work with local stakeholders to develop such programs.

Infineum commented on NO_x reductions obtainable from using its gasoline additive package, and stated that actual reductions, higher than the conservative 5 tpd claimed in the current SIP, will be confirmed by testing. An individual named two companies that produce synthetic lubricants for two-cycle and four-cycle engines. The individual stated that use of these lubricants reduces emissions, and should be promoted for use by governmental equipment fleets.

The commission has not reviewed detailed emissions test data for the products named, but will retain 5 tpd on the gap closure list for the general class of fuel additives and lubricants until more definitive data are available.

The Houston Advanced Research Center, Center for Global Studies recommended that the commission fund a project to establish an assessment and certification process for emission reduction technologies and measures. Judge Eckels commented that a streamlined regulatory approval process should be implemented to allow for technological flexibility.

The commission realizes that EPA's certification procedures for VMEP and on-road/off-road mobile source control measures may be cumbersome and time-consuming, in light of the short timeframe for developing ozone control measures for the attainment SIP. The commission has established an Innovative Technology committee within the agency, and is interested in pursuing improved or alternative procedures to encourage development of innovative control strategies.

An individual suggested that a Combined Heat & Power industrial park be developed to allow several companies to pool resources for cogeneration as an alternative to individual plants producing their own power or purchasing it from utilities, thus reducing overall emissions.

The commission is in favor of cleaner power production, but has no authority to require the establishment of cooperative cogeneration plants. Such facilities would have to obtain the necessary new source review permits from the commission before constructing and operating.

The Galveston Bay Conservation and Preservation Association (GBCPA) commented that the HGA SIP does not adequately account for emissions from the Port of Houston Authority's proposed Bayport Container Terminal, nor does it require mitigation measures to reduce emissions.

The commission has worked intensively with the Port of Houston Authority and other stakeholders in the HGA area to identify and implement control measures for off-road mobile sources, including the type operated by the Port. These measures, many of which represent leading-edge technology, are expected to achieve sizable reductions from off-road sources. Mitigation measures for the proposed Bayport Container Terminal are evaluated and implemented under general conformity rules, which are not the subject of the current SIP revision. The commission is currently working with the Port of Houston Authority to ensure that the SIP accurately accounts for emissions from the Port.

BEAUMONT/PORT ARTHUR SIP

General

State Representative Zeb Zebranek, House District 20, commented that the contributions of Chambers and Liberty counties to the HGA area's total onroad mobile source emissions are very small, yet these counties are being considered for inclusion in expanded vehicle I/M testing for the entire 8-county area.

Harris County is currently the only county in the HGA area with I/M testing requirements. In modeling potential benefits from expanding I/M testing, the commission staff included the entire 8-county HGA CMSA, which includes Chambers and Liberty counties. Although portions of these and other counties in the HGA area may be somewhat rural in nature, the total air quality impact of trips originating in these counties for employment, shopping, and recreational purposes is not negligible. The commission has not proposed rules for expanded I/M in the HGA area, but will take these comments into consideration during its rule development process later in 2000.

An individual representing the Clean Air and Water, Inc. (CAWI) stated that the BPA area should be reclassified from a moderate to a serious ozone nonattainment area or, alternatively, should be included in the HGA ozone nonattainment area. CAWI also commented that vehicle I/M should be implemented statewide. CAWI favored implementation of the new 8-hour ozone standard instead of the current 1-hour ozone standard.

EPA reclassified BPA from a serious to a moderate ozone nonattainment area in 1996, based on ambient air quality monitoring data. BPA's attainment demonstration makes use of EPA's transport policy, which allows the area's attainment date to be extended to no later than that of HGA (November 15, 2007) without bump-up to a higher classification. However, the area must make reasonable, expeditious reductions to address its own locally generated ozone problem. With regard to I/M, the commission has not identified the need for extending this program statewide. Concerning the 8-hour ozone standard, EPA guidance states that an existing nonattainment area under the existing 1-hour ozone standard must attain that standard before progressing to the 8-hour standard. EPA plans to designate nonattainment areas for the 8-hour standard later in 2000, and will advise states as to requirements for attainment demonstrations under that standard.

The Coalition of Jefferson County Chambers of Commerce commented that the Phase II attainment demonstration rules are not necessary for BPA, and requested that any rules be based on sound science.

The commission's photochemical modeling analysis indicates that additional NO_x reductions are necessary for the BPA area to attain the ozone standard, even taking into account the influence of transport from HGA. The commission therefore adopts the Phase II rules.

An individual commented that rules should be adopted to limit NO_x emissions from butane cigarette lighters.

The commission has not identified cigarette lighters as a cost-effective candidate for NO_x control.

An individual commented that proper inflation of vehicle tires and the use of radial tires should be promoted to improve fuel economy.

The commission supports voluntary measures to improve fuel economy, but currently has no plans to require that the measures suggested by the commenter be implemented.

An individual stated that grandfathered plants should be controlled.

The attainment demonstration rules adopted for BPA apply regardless of a unit's grandfather status. Application of these rules to BPA utilities will realize even greater NO_x reductions than the rules mandated under SB 7 for grandfathered utilities.

The City of Port Neches commented that regulations should be based on sound, scientific data, not as a reaction to threats of lawsuits.

The commission agrees with the commenter, and ensures that sound science is applied in developing and implementing its regulations.

An individual representing People Against Contaminated Environment commented that the health and safety of children should be the primary concern in developing clean air requirements, and stated support for stricter rules.

The goal of attaining the ozone standard is to assure safe and healthy air for all persons. The commission appreciates the support for regulations to achieve this goal.

Modeling

EPA commented that the modeling associated with this BPA attainment demonstration includes significant changes to the emissions inventory (e.g., biogenics, point and mobile sources), and relies, in part, on the proposed regional control strategy. EPA noted that it now has access to the appendices and pertinent data files which support these changes and reductions, but has not had time to review the information.

The commission believes that adequate documentation has been provided to EPA that should enable resolution of all issues. The commission will continue to work with the EPA Region 6 Office to address EPA's technical concerns.

EPA commented that Tables 3-1 and 3-2 on page 3-5 of the December 1999 narrative do not appear to be consistent. Table 3-1 shows an overall weighted NO_x reduction for point sources in the BPA area of 38% (i.e., percent change from 2007 projected point source NO_x emissions), whereas the point source NO_x emissions listed in Table 3-2 (i.e., 170.49tpd (2007 base) and 96.57 tpd (control)) suggest a 43.4% reduction.

Tables 3-1 and 3-2 were reviewed and corrected. The correct reduction value for both tables is 38%.

EPA commented that on page 6-4, under the Section 6.3.2, "Description of Methodology," the narrative indicates that the use of a 9 by 9 cell array about a monitor for 4 by 4 km modeling grid cells, is based upon EPA's "Use of Models and Other Analyses in Attainment Demonstrations for the Eight Hour Ozone NAAQS (Draft, 1998)." EPA stated that this 1998 draft document actually prescribes the use of a 7 by 7 cell array about a monitor for 4 by 4 km modeling grid cells. Using a larger cell array is not recommended under the draft 1998 guidance. EPA further commented that the commission's use of the

larger cell array may not have reflected the need to use the “screening test” for areas with high model predictions not “nearby” a monitor. If Texas wishes to rely upon EPA’s draft 1998 guidance, EPA suggested that the commission should follow the criteria of the guidance and use a 7 by 7 cell array, and address any high predicted areas with the “screening test” as prescribed in the cited 1998 document.

EPA’s requested approach has been included in the Weight of Evidence Section of the SIP narrative. In addition, the commission staff has conducted a screening test using the maximum modeled concentration. The original 9 by 9 cell approach has been retained, since it may be considered a conservative, alternative approach.

EPA commented that due to the year-to-year variability of the design value in the BPA area, EPA’s acceptance of WOE determinations which include the future design rollback method (RRF) must be based on the incorporation of current design values from more than one year. EPA also stated that this more than one year approach is consistent with the approaches taken in other areas where the RRF analysis has been used in a WOE determination (New York, Philadelphia, Baltimore). The episodes modeled for this attainment demonstration occurred in 1993, which has a relatively low one-hour ozone design value (136 ppb) compared to the 1992 (144 ppb) and 1994 (158 ppb) design values. Since a WOE analysis must provide compelling evidence that the level of controls being proposed will bring the area into attainment, EPA stated that using the three design values for the years 1992 thru 1994 is warranted, and strengthens the WOE determination that attainment is likely by the attainment date.

The new data is included in the Weight of Evidence portion of the SIP. EPA’s recommended changes resulted in the following: (1) four design value calculations, based on the years 1991-93, 1992-94, 1993-95, and an average design value based on 1992-1994; (2) additional documentation regarding Predicted Concentrations; and (3) elimination from the DVf/RRF analysis of ramp-up days and modeled episode days with unacceptable performance. This means that 8/31, 9/1, 9/6, 9/7, and 9/8 have been removed from the analysis. Text has also been added to the SIP to better explain Table 6.3-17.

EPA commented that Table 6.3-2 on page 6-5 of the December 1999 narrative does not include model predicted maximum ozone concentrations for BPA monitor S40S on 9/2/93 or S43S on 9/1/93. The associated note to Table 6.3-2 indicates that the reason the values were excluded was because they met one of the two following conditions:

- 1) $DV_c \leq 125 \text{ ppb}$ and $P_c < 100 \text{ ppb}$
- or
- 2) $DV_c < 125 \text{ ppb}$ and $P_c < (DV_c - 20 \text{ ppb})$

where

DV_c = Current Design Value

P_c = Predicted Concentration

EPA stated that in order for either of these conditions to be true, the DV_c must be less than or equal to 125 ppb. However, as presented in the table, the design values for these two monitors are 135 ppb and 134 ppb, respectively. This would indicate that the P_c ’s for BPA monitors S40S on 9/2/93 and S43S on 9/1/93 should be included in the calculation of the Mean P_c .

EPA commented that the state's proposed approach for excluding values apparently uses an alternative method presented in the article by Smith, et. al. in Proceedings of the AWMA 92nd Annual Meeting and Exhibition. This article proposes that some modeling data values be excluded if they meet one of the two following conditions:

- 1) $DV_c \geq 125 \text{ ppb}$ and $P_c < 100 \text{ ppb}$
or
- 2) $DV_c < 125 \text{ ppb}$ and $P_c < (DV_c - 20 \text{ ppb})$

EPA noted that these conditions for excluding modeling data values are not representative of the typical procedure for the future design value method in a WOE analysis, and that the commission needs to supply an acceptable justification for the Smith procedure since it is not contained in any EPA draft or final guidance.

The method used for excluding days/concentrations is based upon that found in the DFW attainment demonstration and the referenced AWMA paper by Smith, et al. The correct exclusion methodology is the first one cited by EPA above. The new DVf tables correctly reflect this method for the appropriate combinations of days/design values/predicted concentrations.

EPA commented that it appears from Table 6.3-2 that more than just the primary episode days were used in the calculation of the mean P_c . EPA's acceptance of the use of the RRF analysis as a part of the WOE is predicated on the use of primary episode days (i.e., those days for which monitored data or modeled results indicate an exceedance) and no inclusion of start-up days or days for which the model does not provide adequate performance. As an example, EPA stated that September 1, 1993 was not a primary episode day in the BPA area, and therefore should not be used in the calculation of the mean P_c . EPA also commented that the calculation of the mean P_f , as displayed in Table 6.3-3, should not include start-up days or days for which the model does not provide adequate performance.

The commission has recalculated the RRFs, Pfs, and DVfs and has excluded days with poor model performance, ramp-up days, and days that were not primary episode days.

EPA commented that the narrative on page 6-7 appears to indicate, for the BPA control scenarios, that the RRF will be determined using the "Ratio of the Means" method, and that the values for September 8 will not be used. However, the mean P_f displayed in Tables 6.3-6 (5b), 6.3-8 (5b1), 6.3-11 (Revised BC), 6.3-13 (revised 5b), 6.3-15 (revised 5b1) seem to include the values for September 8. EPA recommended that the values for September 8 should be excluded, and the tables corrected.

September 8 has been excluded and the table has been corrected.

EPA commented that it is not clear from the text where the values presented in Table 6.3-17 come from, and that it is not clear why 9/1/93 and 9/2/93 are not included in the table. EPA concluded that the reference to Tables 6.3-15, 6.3-16, and 6.3-17 at the bottom of page 6 is a typographical error and that the intended text was "Tables 6.3-18, 6.3-19, and 6.3-20." EPA stated that these comments on the exclusion of values for September 8, and the exclusion of 9/1/93 and 9/2/93 in the summary are pertinent to Tables 6.3-18, 6.3-19, and 6.3-20.

The reference text was a typographical error and has been corrected. In addition, all revised DVf tables will reflect EPA's comments regarding the exclusion of days and predicted values.

EPA commented that the state apparently used only the future design value estimation technique, using the RRF analysis, in its proposed WOE determination. EPA stated that its 1996 “Guidance on Use of Modeled Results to Demonstrate Attainment of the Ozone NAAQS” presents a number of analyses other than the RRF analysis (e.g., other modeled outputs, actual observed air quality trends, estimated emissions trends, the responsiveness of the model predictions to future controls and additional control measures in the proposed SIP that were not modeled) that can be included in a WOE determination. However, as indicated in the guidance, if a particular WOE analysis (e.g., trends) is not used, the reasons for not using it are to be documented. EPA commented that it could not find such documentation, and requested that it be included in the final submittal.

The commission disagrees with EPA’s assertion that the state must document its justification for WOE measures not used. However, additional WOE in the form of the 30% point source reduction in adjacent non-SIP call states, spatial/temporal modeling metrics, and design value trends have been added.

EPA commented on the new proposed growth calculation included in Appendix A to the BPA SIP, which addresses the growth of emissions from 1990 to the 2007 future case. EPA expressed concern about the state’s assumption that the rate of emissions banking will remain the same after 1999, in light of more stringent upcoming rules that will lower the baseline from which surplus emissions can be determined. In its comments on the Phase I BPA SIP, submitted to EPA on November 15, 1999, EPA suggested three options for developing growth factors as alternatives to its preferred EGAS approach. Furthermore, EPA stated that the banked emission reduction credits must be explicitly modeled in the attainment demonstration to remain creditable, and that any emission reduction credits not modeled in this attainment demonstration must be removed from the bank and may not be used for permit netting and offsets in the BPA area. EPA also stated that emissions that were banked and included in the modeling must be certified again before they can be used in the BPA area.

Further discussions with EPA staff resulted in a variation of EPA’s third option being developed by EPA and commission staff. This option involved projecting the 1993 modeling inventory using the shutdown/startup rate from the survey, but in calculating the rate of growth, any shutdowns that had been banked were subtracted because they are anticipated to be replaced by new growth. The new method includes start-up and shutdown emissions. The commission incorporated the growth methodology enumerated in a March 22, 2000 e-mail from Richard Karp, EPA Region 6, to Jim Smith, TNRCC and remodeled the future base case and control strategy scenarios for both the August 31 - September 2, 1993 and September 8-11, 1993 episodes. The e-mail is included as Appendix R in the Beaumont SIP.

The South East Texas Plant Managers Forum questioned if there has been consistent application of bias correction in all the modeling demonstrations for the DFW, HGA, and BPA ozone nonattainment areas.

The only instance in which the commission ever used bias correction is described briefly in the DFW attainment demonstration SIP. For DFW, the commission used bias correction during the course of evaluating candidate control strategies. Bias correction was not used as part of the deterministic modeling test, nor was it used as part of the WOE analyses for the DFW, BPA, or HGA SIP submissions.

The SETRPC commented that by using a November 1999 EPA gap-filling estimation technique, control levels of Scenario 5b would not be sufficient, but that Scenario 5b1 would result in superfluous controls.

The attainment demonstration always begins with the deterministic test to determine whether all modeled grid cells are less than 125 ppb. If this condition is not met, WOE analyses must be explored. With WOE, more analyses are required the farther the modeled demonstration is from 125 ppb. As part of the commission's attainment demonstration for BPA, the agency has used the DVf/RRF technique as its WOE method. After releasing the proposed SIP for public comment, the commission was informed by EPA that this proposed WOE is not sufficient to demonstrate expected attainment by 2007. The adopted SIP contains additional analyses to shore up the WOE arguments. It would not seem reasonable to substitute a different single alternative WOE approach (SETRPC's gap-filling analysis) that allows for less reductions, when EPA has already indicated that the commission's current approach is not sufficient.

SETRPC questioned the commission's analysis of locally-generated versus transport episodes. SETRPC noted that if not for transport, BPA would be in attainment since the area itself does not produce enough ozone.

The FCAA does not provide for cases of "attainment but for transport." However, EPA's transport policy does give nonattainment areas impacted by transport a mechanism for reaching attainment without undue burdens that are required of more serious upwind areas.

SETRPC used the commission's modeling contractor to redo performance statistics where monitoring sites were eliminated on three days of the September episode (September 8, 9, and 11) in order to show that model performance on September 10 might actually be suspect. SETRPC suggested that since model performance was only acceptable on September 10, and on this day, the ozone cloud was mostly offshore and away from monitors, the acceptable performance is somehow suspect. SETRPC concluded that this episode should not have been used for control strategy development.

This is a hypothetical exercise that could also have been played the other way. That is, if enough sites were eliminated from the September 8 day, it would have had acceptable performance and then September 8 might have become the controlling day, thus requiring greater reductions. Even if the commission agreed that the September 8-11 period was not appropriate, it does not mean that modeling a locally-generated episode could be eliminated. Because of time constraints, a different home-grown episode probably could not have been developed in time to meet EPA's deadlines, and BPA would certainly face bump-up.

SETRPC commented that if the commission had adjusted the modeling results for bias, the scenario 5b1/Phase II NO_x rules would not be needed.

As noted above, the only instance in which the commission ever used bias correction is described briefly in the DFW attainment demonstration SIP. For DFW, the commission used bias correction during the course of evaluating candidate control strategies. Bias correction was not used as part of the deterministic modeling test, nor was it used as part of the WOE analyses for DFW, BPA, or HGA.

SETRPC noted that for the BPA modeling, HGA is not in modeled attainment. If Houston were at attainment, modeling would show that BPA would be in attainment, and additional NO_x rules would not be needed.

Modeling has not yet been performed showing attainment in HGA for the September 8-11, 1993 episode. However, on September 10, which is the controlling day for this episode in BPA, the transport effect from HGA is minimal.

SETRPC noted that according to its WOE analyses, scenario 5b1 is superfluous, and the DVf performed for scenario 5b shows future design values below 125 ppb. SETRPC commented that EPA's WOE approach/policy is difficult to pin down and sometimes contradictory. SETRPC referenced EPA's November 1999 guidance for identifying additional reductions by not modeling ("gap-filling"), and how it should be applied instead of the current future design value approach.

The deterministic test is used to determine whether all modeled grid cells are less than 125 ppb. If this test is not met, additional analyses must be used as justification for expected attainment. A WOE/DVf analysis that shows BPA's future design value to be 124 ppb, for example, would not carry nearly as much weight as one that predicts 116 ppb. In addition, the commission's understanding is that EPA's November 1999 guidance is a mechanism for helping areas which model large suites of controls, yet still are short of attainment. BPA does not fall into that category. Additional input from EPA indicates that the techniques outlined in the November 1999 gap-filling guidance may be used if conventionally calculated future design values are greater than 125 ppb at one or more monitors, but the technique may not be used to estimate additional reductions which are not modeled.

SETRPC noted that BPA is being held to a stricter standard than St. Louis, which is also a moderate nonattainment area. In particular, St. Louis RACT requirements are much less than BPA's, although St. Louis has 65% more point source NO_x.

Based on the commission staff's recent conversations with the Illinois EPA, the St. Louis control strategy consists of a local component that contains mandated 15% ROP controls, centralized I/M 240 on both Illinois and Missouri sides of the Mississippi river (to determine whether all modeled grid cells are less than 125 ppb), RFG on the Missouri side, and any additional FCAA-mandated controls; and a regional component that controls EGUs to 0.25 lb NO_x/MMBtu in Illinois and eastern Missouri (mandated by EPA's NO_x SIP call), EGUs to 0.35 lb/MMBtu in western Missouri, and EGUs to 0.25 lb/MMBtu in other NO_x SIP call states. The commission understands that the majority of the point source NO_x in and around St. Louis is emitted by coal-fired EGUs. The St. Louis SIP also includes the following WOE elements: emission trends, air quality trends, RRFs, and analysis of reduction in pervasiveness, frequency, and intensity of modeled ozone. The commission is submitting the same level of WOE for BPA.

